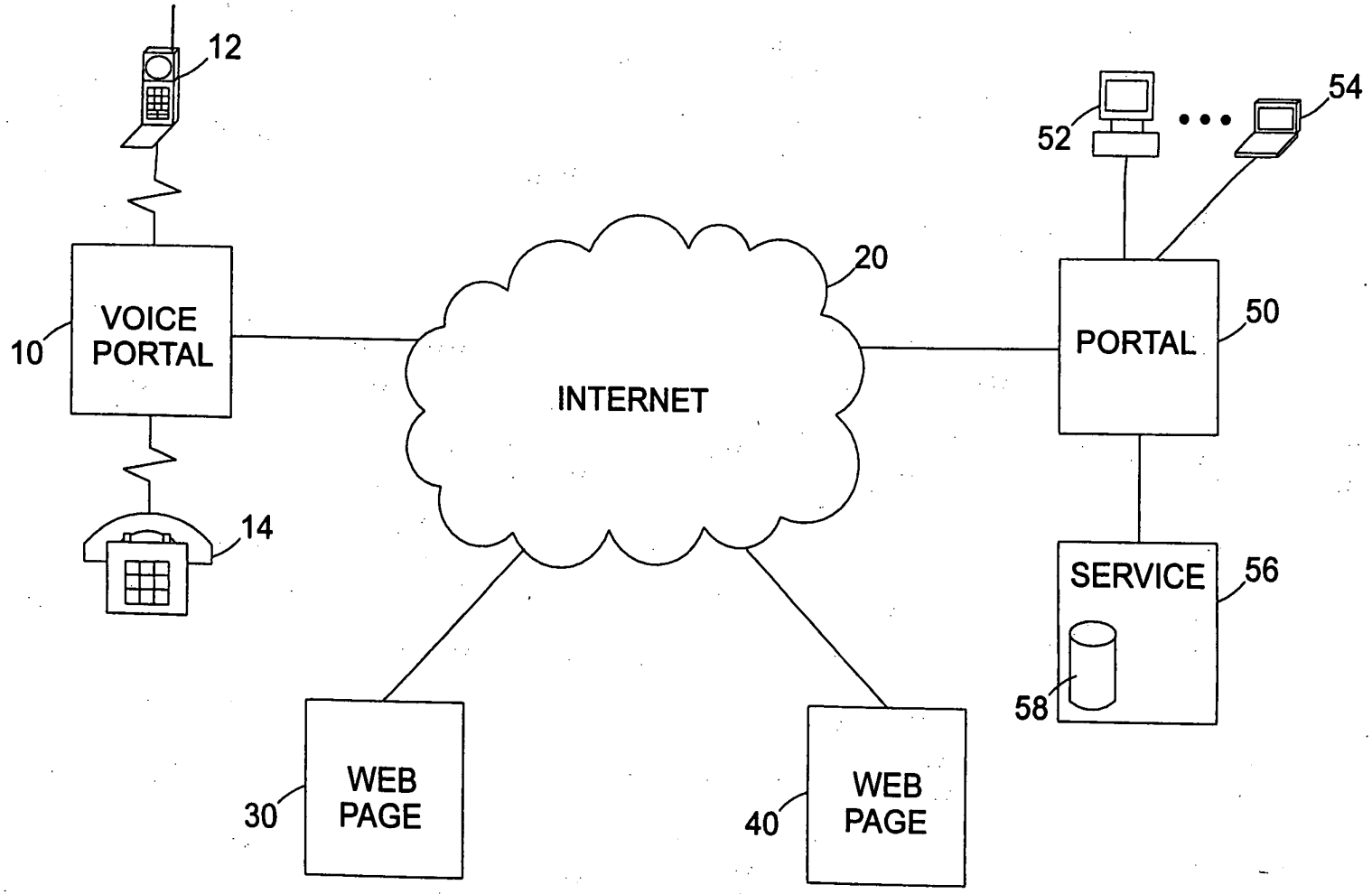

FIG. 1

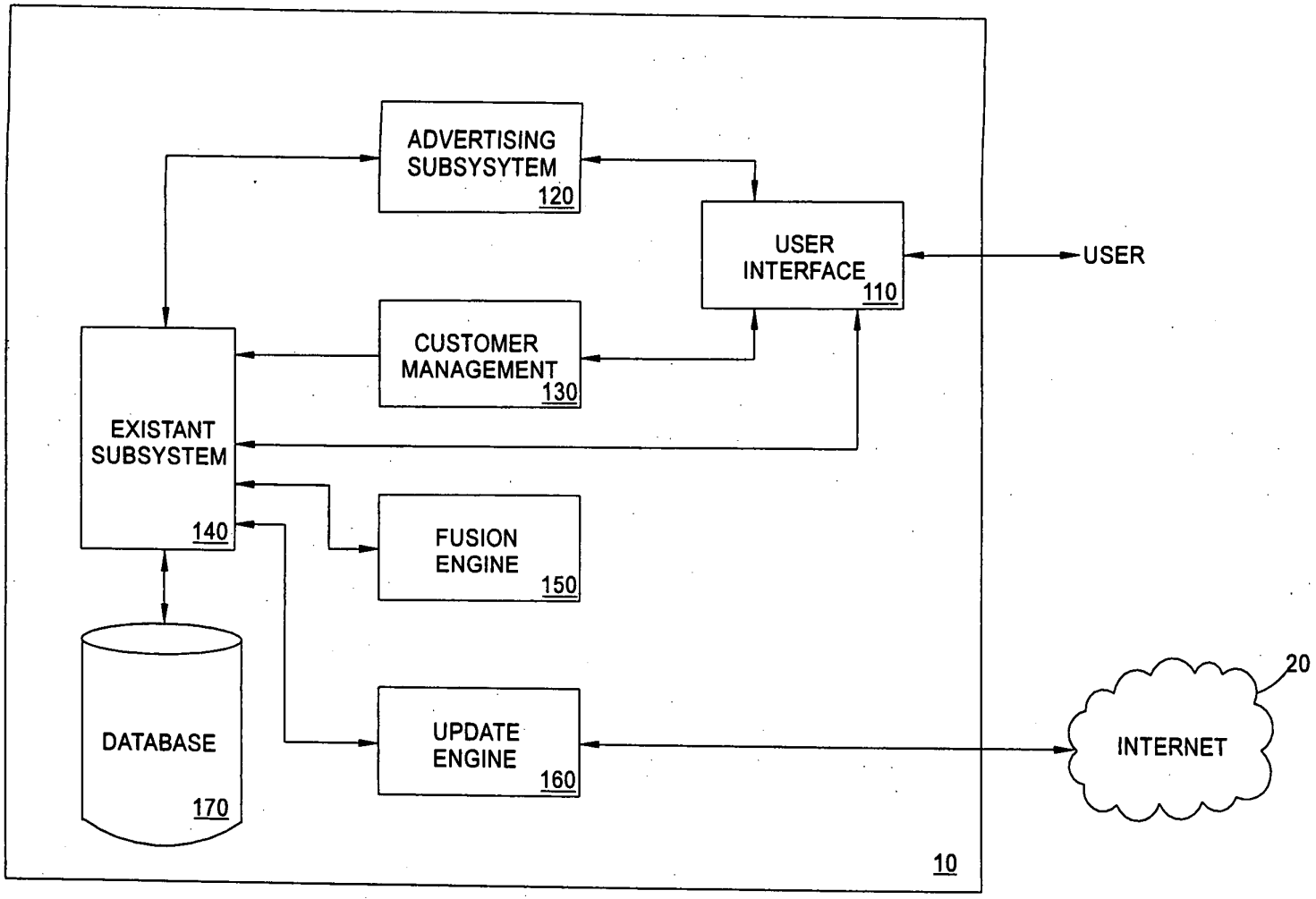

FIG. 2

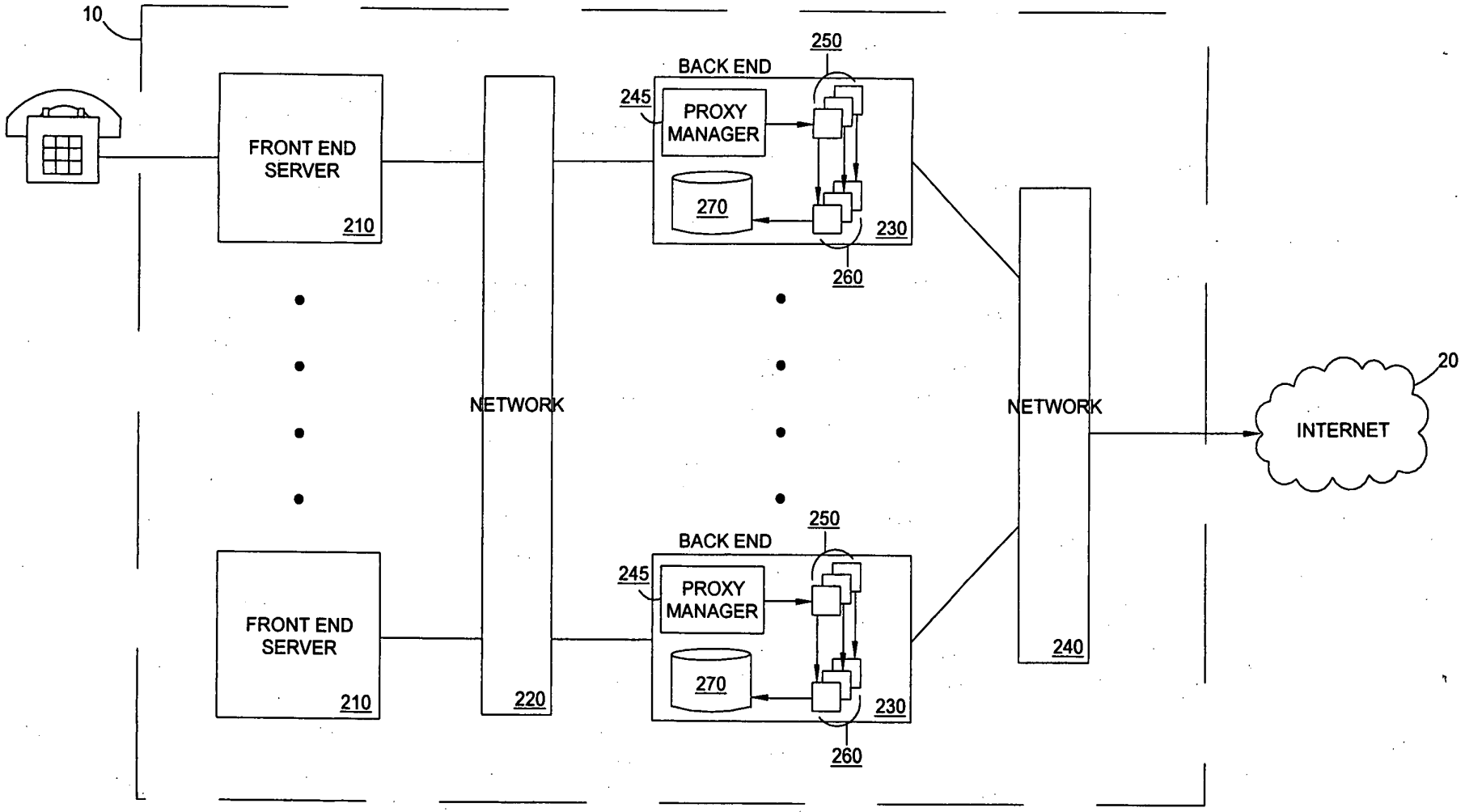

FIG. 3

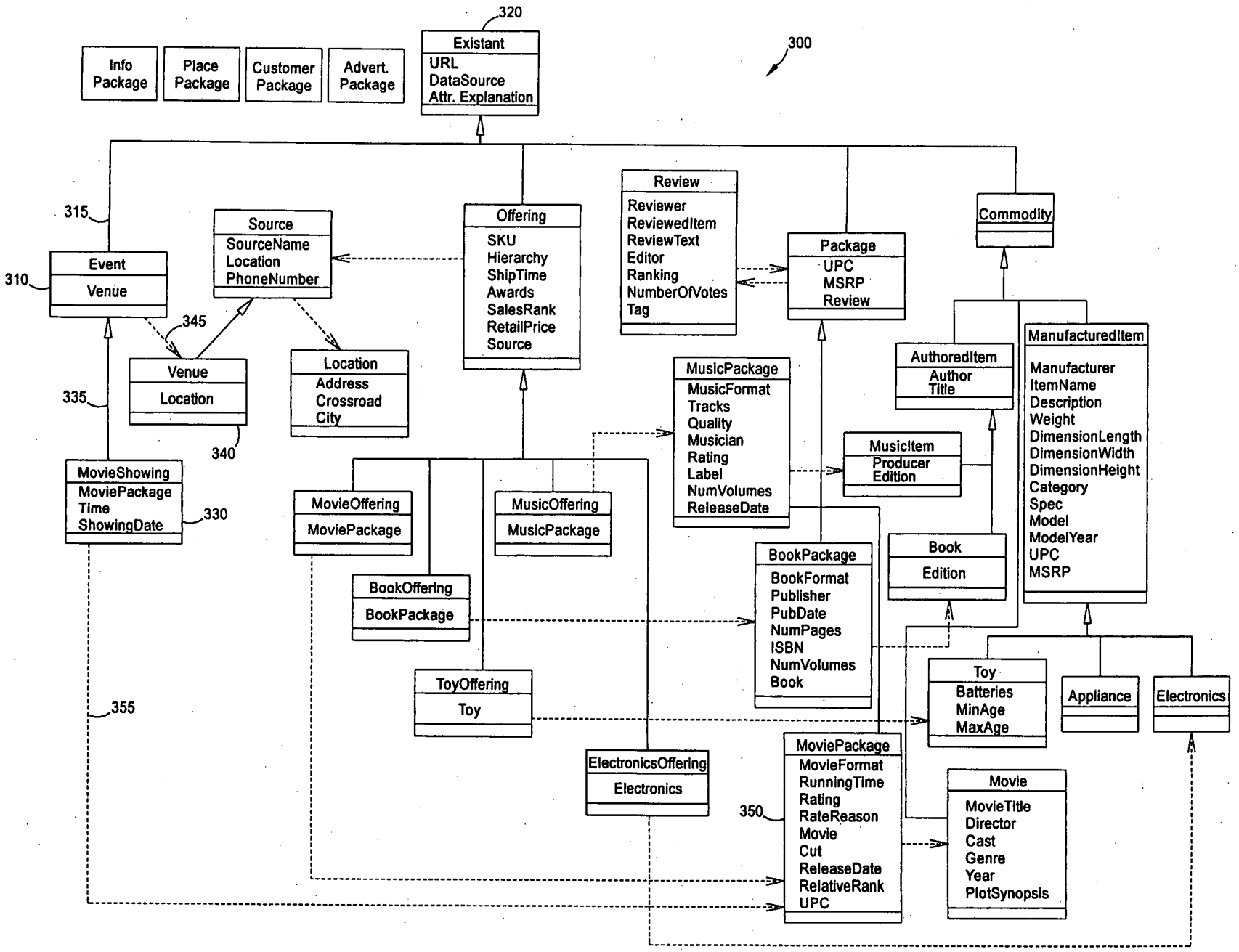

FIG. 4

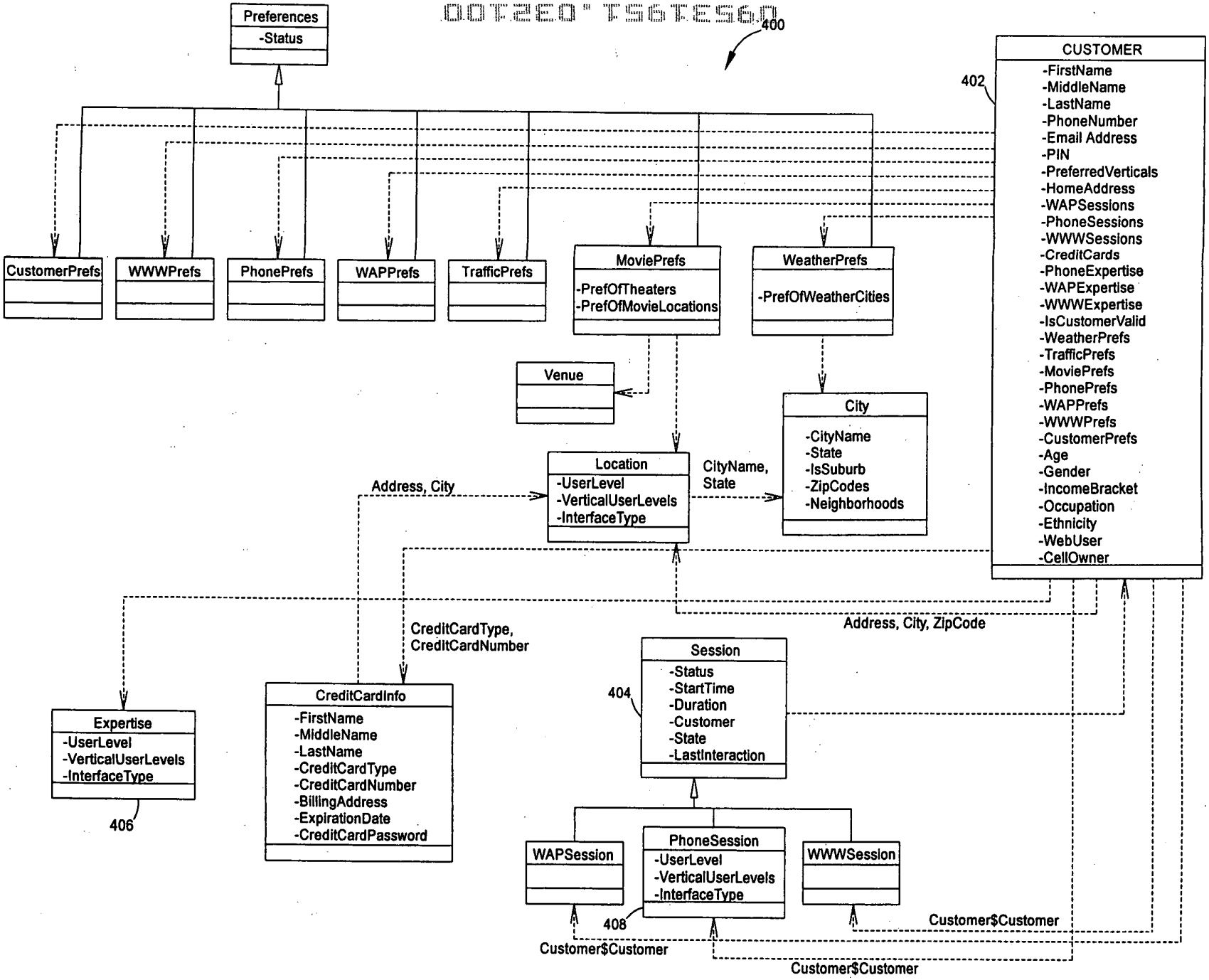
Preferences
-Status
400
CUSTOMER
-FirstName
-MiddleName
-LastName
-PhoneNumber
-Email Address
-PIN
-PreferredVerticals
-HomeAddress
-WAPSessions
-PhoneSessions
-WWWSessions
-CreditCards
-PhoneExpertise
-WAPExpertise
-WWWExpertise
-IsCustomerValid
-WeatherPrefs
-TrafficPrefs
-MoviePrefs
-PhonePrefs
-WAPPrefs
-WWWPrefs
-CustomerPrefs
-Age
-Gender
-IncomeBracket
-Occupation
-Ethnicity
-WebUser
-CellOwner
402
CustomerPrefs
WWWPrefs
PhonePrefs
WAPPrefs
TrafficPrefs
MoviePrefs
-PrefOfTheaters
-PrefOfMovieLocations
WeatherPrefs
-PrefOfWeatherCities
Venue
City
-CityName
-State
-IsSuburb
-ZipCodes
-Neighborhoods
Location
-UserLevel
-VerticalUserLevels
-InterfaceType
Address, City
CityName,
State
Address, City, ZipCode
CreditCardType,
CreditCardNumber
Session
-Status
-StartTime
-Duration
-Customer
-State
-LastInteraction
404
Expertise
-UserLevel
-VerticalUserLevels
-InterfaceType
406
CreditCardInfo
-FirstName
-MiddleName
-LastName
-CreditCardType
-CreditCardNumber
-BillingAddress
-ExpirationDate
-CreditCardPassword
WAPSession
PhoneSession
-UserLevel
-VerticalUserLevels
-InterfaceType
WWWSession
408
Customer$Customer
Customer$Customer
Customer$Customer

FIG. 5

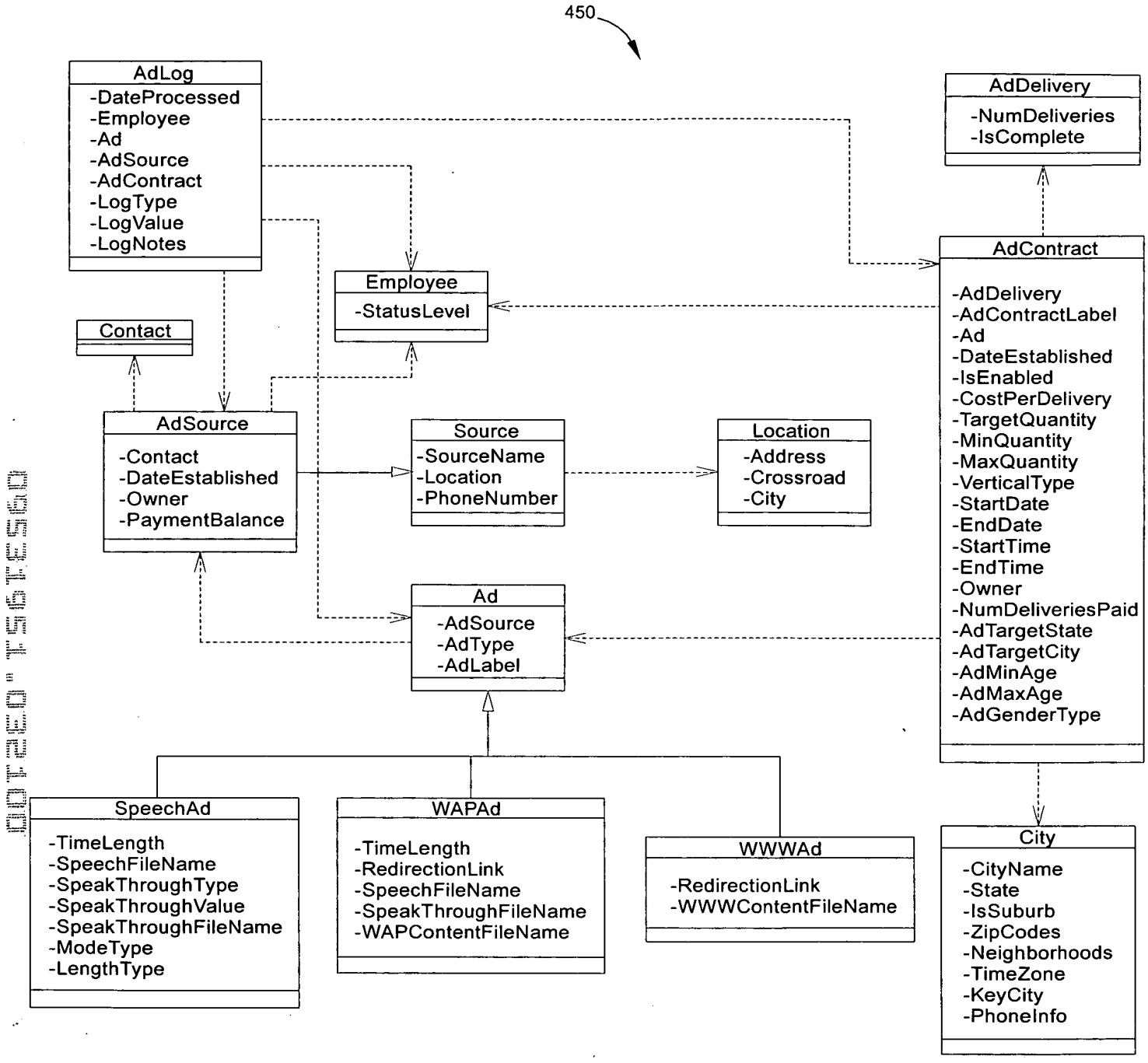
450
AdLog
-DateProcessed
-Employee
-Ad
-AdSource
-AdContract
-LogType
-LogValue
-LogNotes
AdDelivery
-NumDeliveries
-IsComplete
Employee
-StatusLevel
AdContract
-AdDelivery
-AdContractLabel
-Ad
-DateEstablished
-IsEnabled
-CostPerDelivery
-TargetQuantity
-MinQuantity
-MaxQuantity
-VerticalType
-StartDate
-EndDate
-StartTime
-EndTime
-Owner
-NumDeliveriesPaid
-AdTargetState
-AdTargetCity
-AdMinAge
-AdMaxAge
-AdGenderType
Contact
AdSource
-Contact
-DateEstablished
-Owner
-PaymentBalance
Source
-SourceName
-Location
-PhoneNumber
Location
-Address
-Crossroad
-City
Ad
-AdSource
-AdType
-AdLabel
SpeechAd
-TimeLength
-SpeechFileName
-SpeakThroughType
-SpeakThroughValue
-SpeakThroughFileName
-ModeType
-LengthType
WAPAd
-TimeLength
-RedirectionLink
-SpeechFileName
-SpeakThroughFileName
-WAPContentFileName
WWWAd
-RedirectionLink
-WWWContentFileName
City
-CityName
-State
-IsSuburb
-ZipCodes
-Neighborhoods
-TimeZone
-KeyCity
-PhoneInfo

FIG. 6

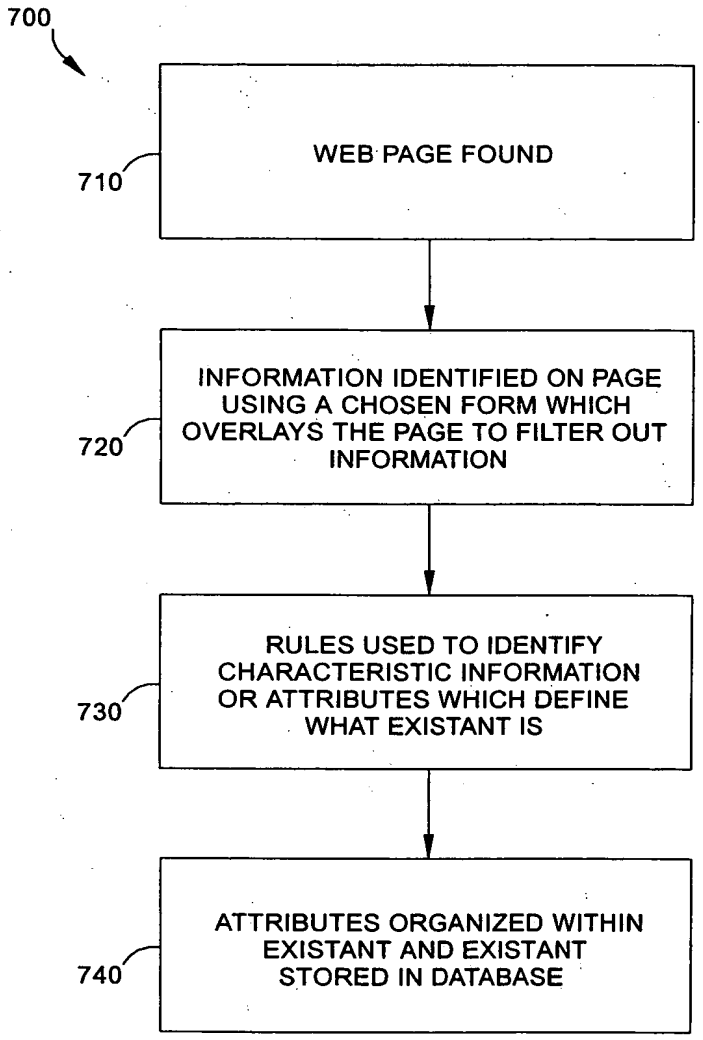
700
WEB PAGE FOUND
710
INFORMATION IDENTIFIED ON PAGE USING A CHOSEN FORM WHICH OVERLAYS THE PAGE TO FILTER OUT INFORMATION
720
RULES USED TO IDENTIFY CHARACTERISTIC INFORMATION OR ATTRIBUTES WHICH DEFINE WHAT EXISTANT IS
730
ATTRIBUTES ORGANIZED WITHIN EXISTANT AND EXISTANT STORED IN DATABASE
740

FIG. 7

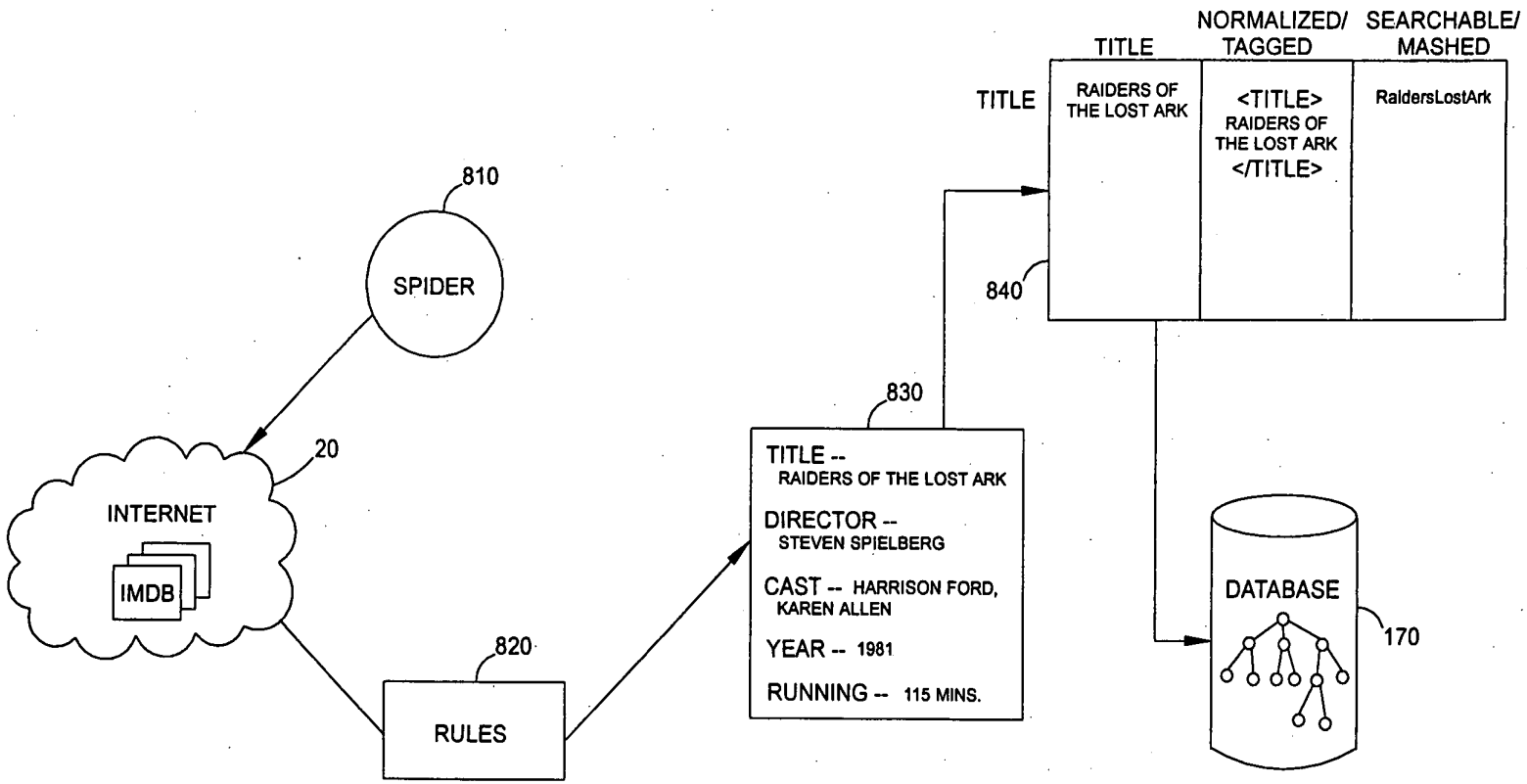

FIG. 8

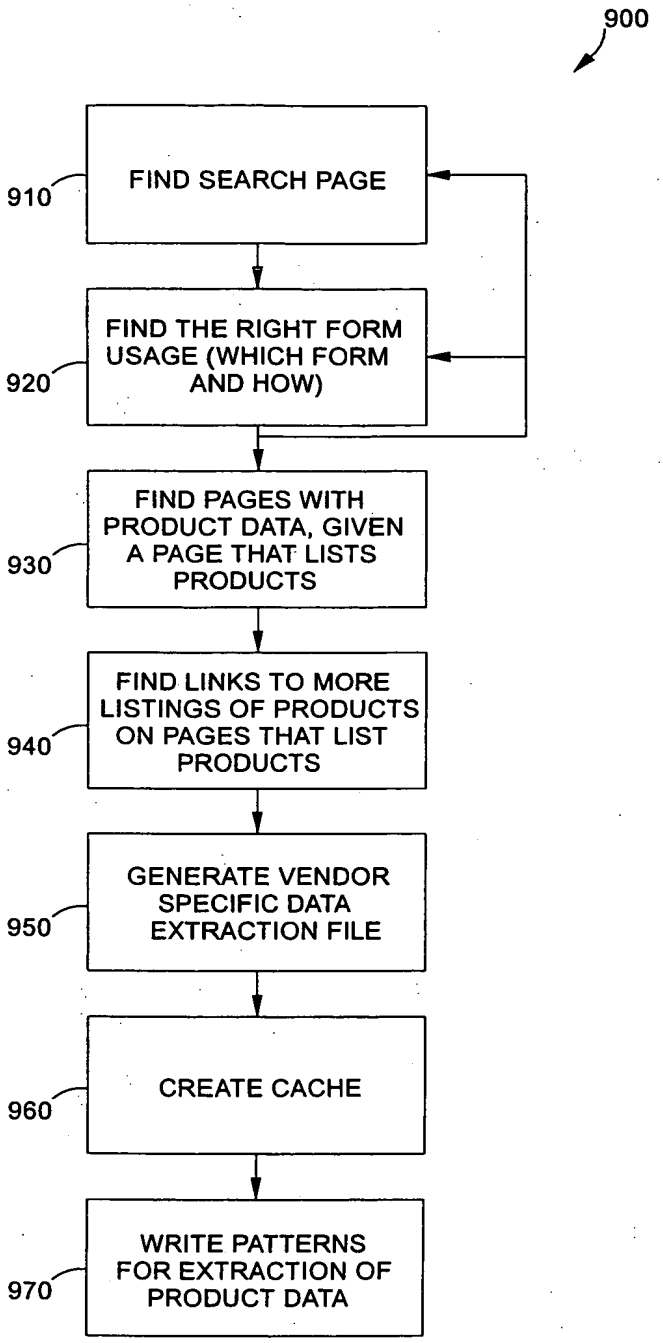
900
FIND SEARCH PAGE
910
FIND THE RIGHT FORM USAGE (WHICH FORM AND HOW)
920
FIND PAGES WITH PRODUCT DATA, GIVEN A PAGE THAT LISTS PRODUCTS
930
FIND LINKS TO MORE LISTINGS OF PRODUCTS ON PAGES THAT LIST PRODUCTS
940
GENERATE VENDOR SPECIFIC DATA EXTRACTION FILE
950
CREATE CACHE
960
WRITE PATTERNS FOR EXTRACTION OF PRODUCT DATA
970

FIG. 9

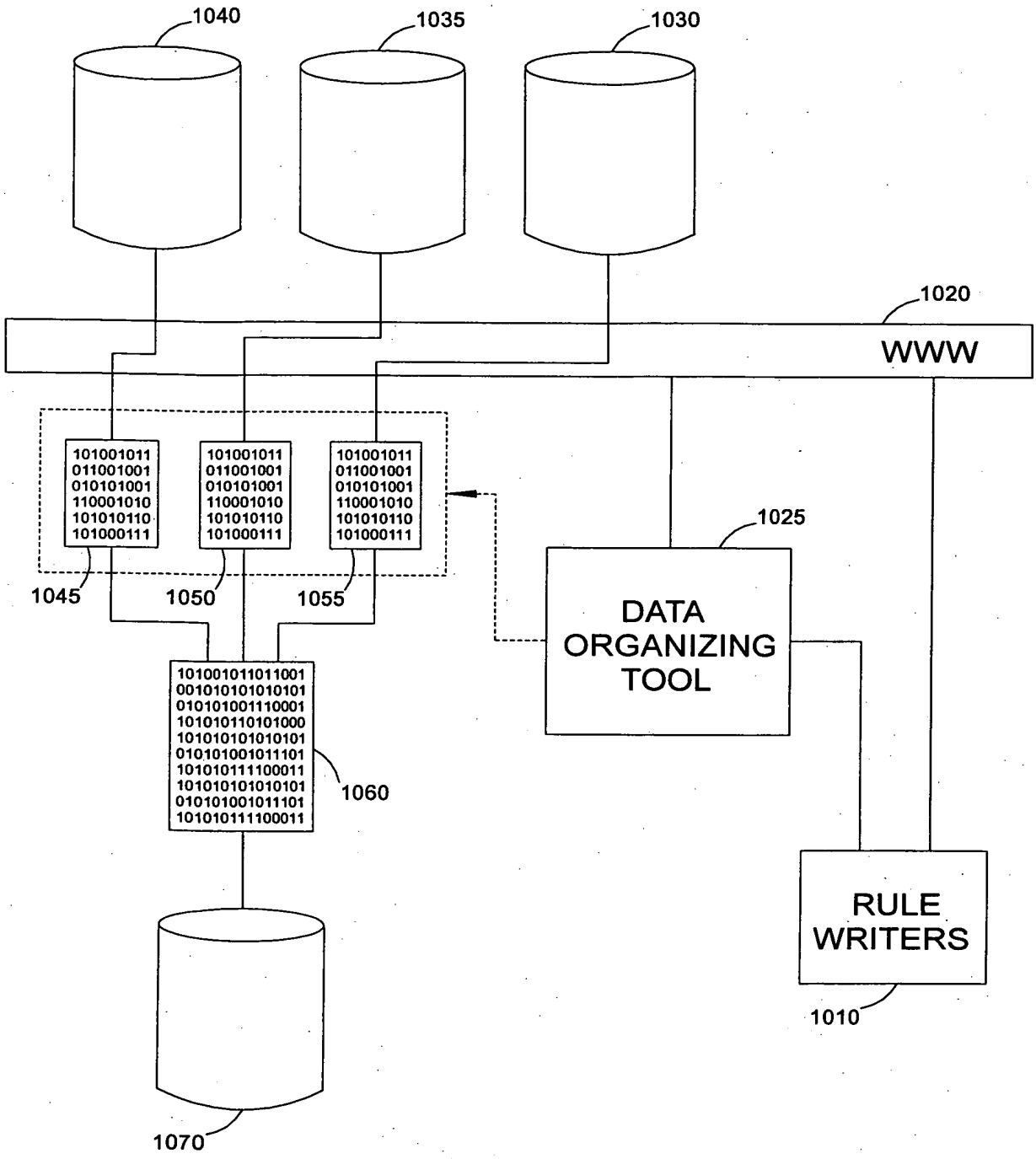
1040
1035
1030
1020
WWW
101001011
011001001
010101001
110001010
101010110
101000111
1045
1050
1055
1025
DATA
ORGANIZING
TOOL
101001011011001
001010101010101
010101001110001
101010110101000
101010101010101
010101001011101
101010111100011
1060
RULE
WRITERS
1010
1070

FIG. 10

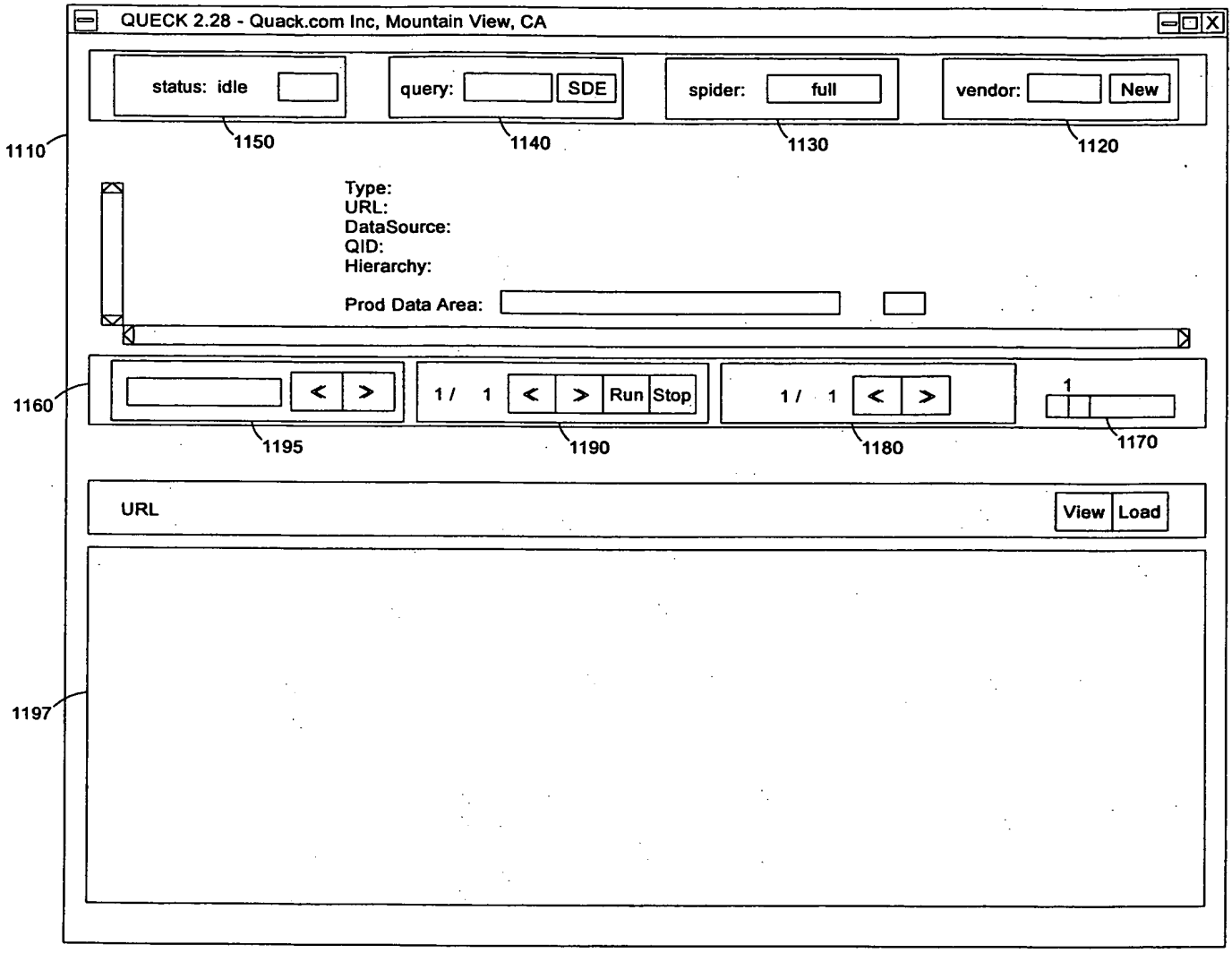
QUECK 2.28 - Quack.com Inc, Mountain View, CA
status: idle
query:
SDE
spider:
full
vendor:
New
1110
1150
1140
1130
1120
Type:
URL:
DataSource:
QID:
Hierarchy:
Prod Data Area:
1160
1 / 1
Run
Stop
1 / 1
1
1195
1190
1180
1170
URL
View
Load
1197

FIG. 11

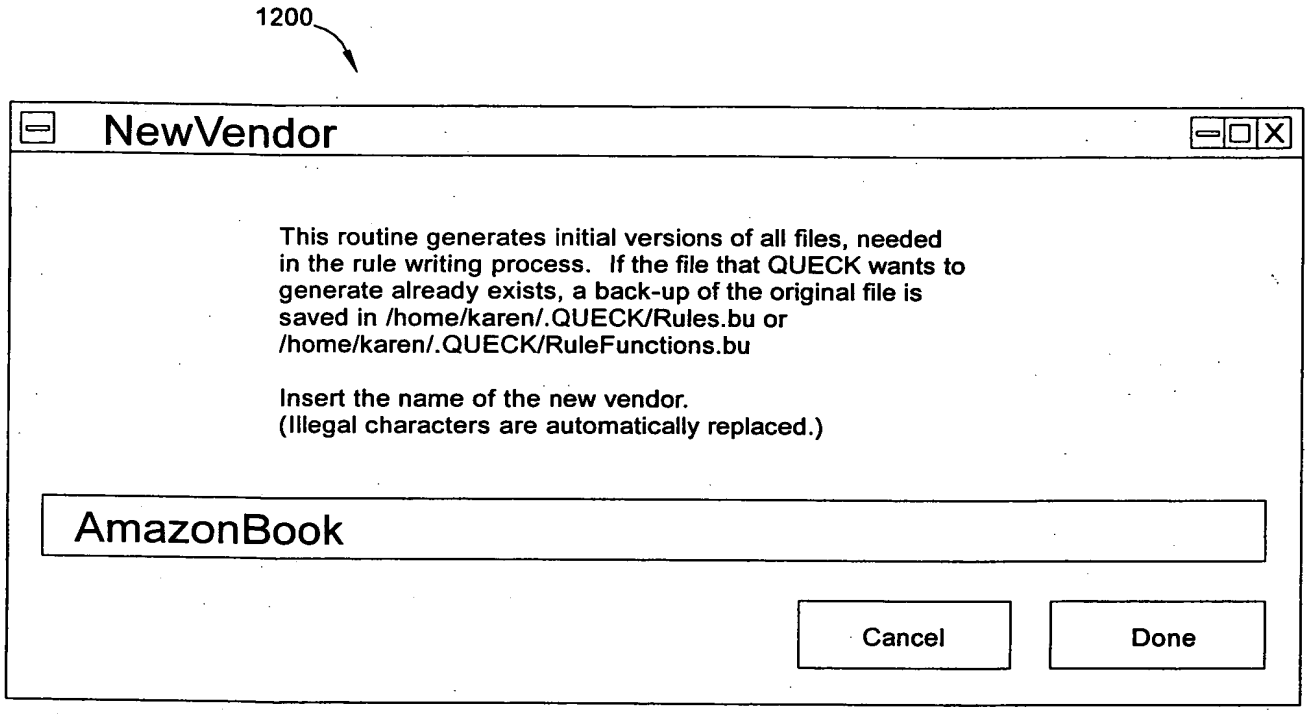
1200
NewVendor
This routine generates initial versions of all files, needed in the rule writing process. If the file that QUECK wants to generate already exists, a back-up of the original file is saved in /home/karen/.QUECK/Rules.bu or /home/karen/.QUECK/RuleFunctions.bu
Insert the name of the new vendor.
(Illegal characters are automatically replaced.)
AmazonBook
Cancel
Done

FIG. 12

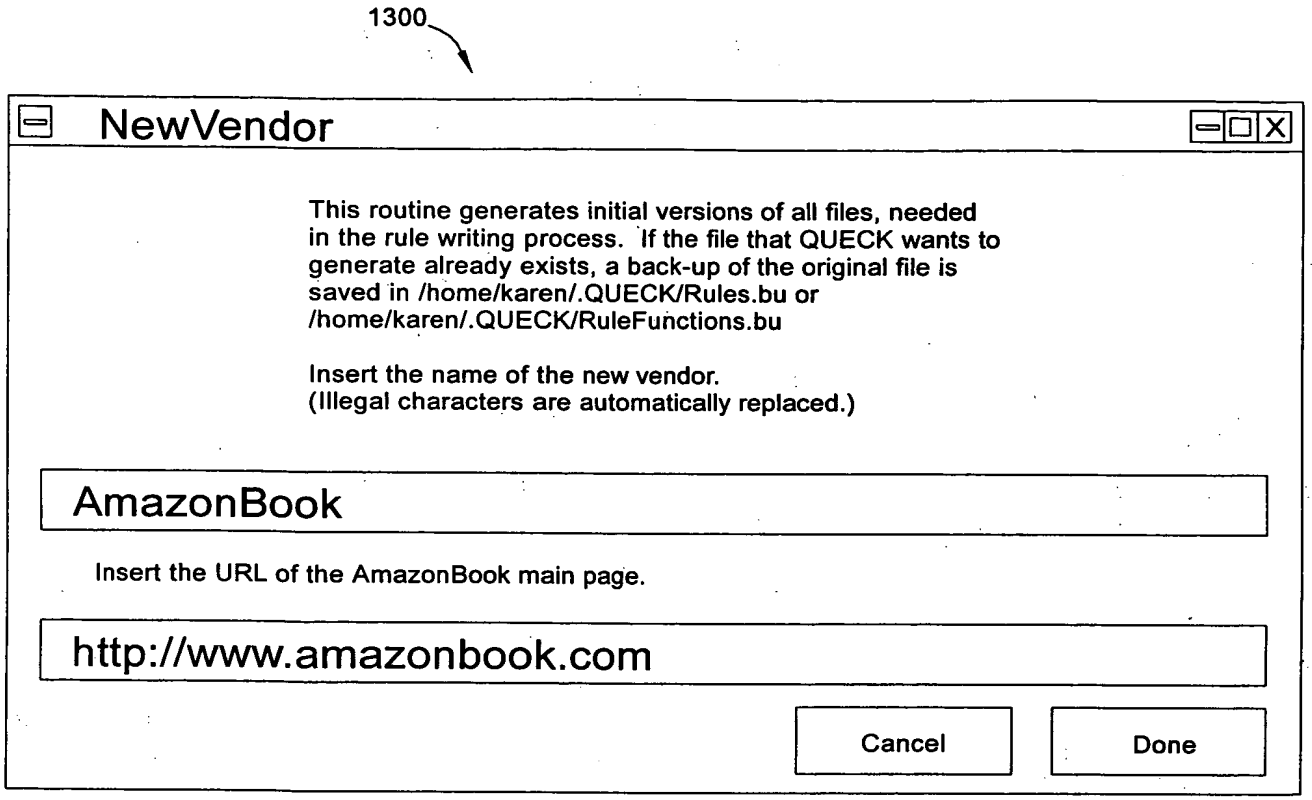
1300
NewVendor
This routine generates initial versions of all files, needed in the rule writing process. If the file that QUECK wants to generate already exists, a back-up of the original file is saved in /home/karen/.QUECK/Rules.bu or /home/karen/.QUECK/RuleFunctions.bu
Insert the name of the new vendor.
(Illegal characters are automatically replaced.)
AmazonBook
Insert the URL of the AmazonBook main page.
http://www.amazonbook.com
Cancel
Done

FIG. 13

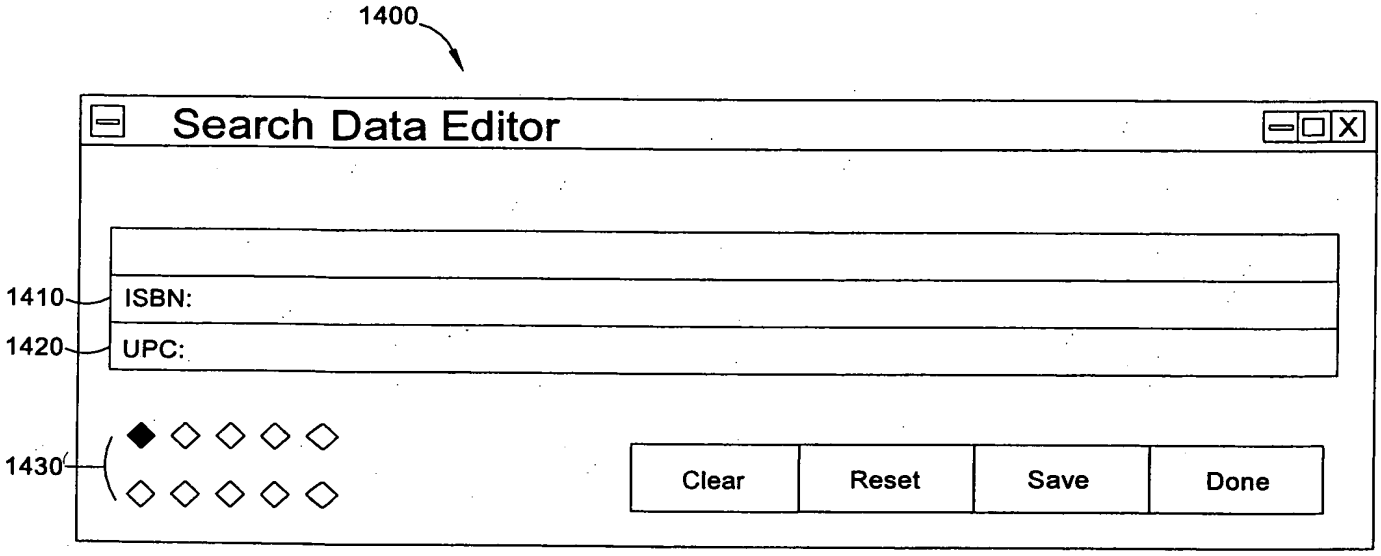
1400
Search Data Editor
1410
ISBN:
1420
UPC:
1430
Clear
Reset
Save
Done

FIG. 14

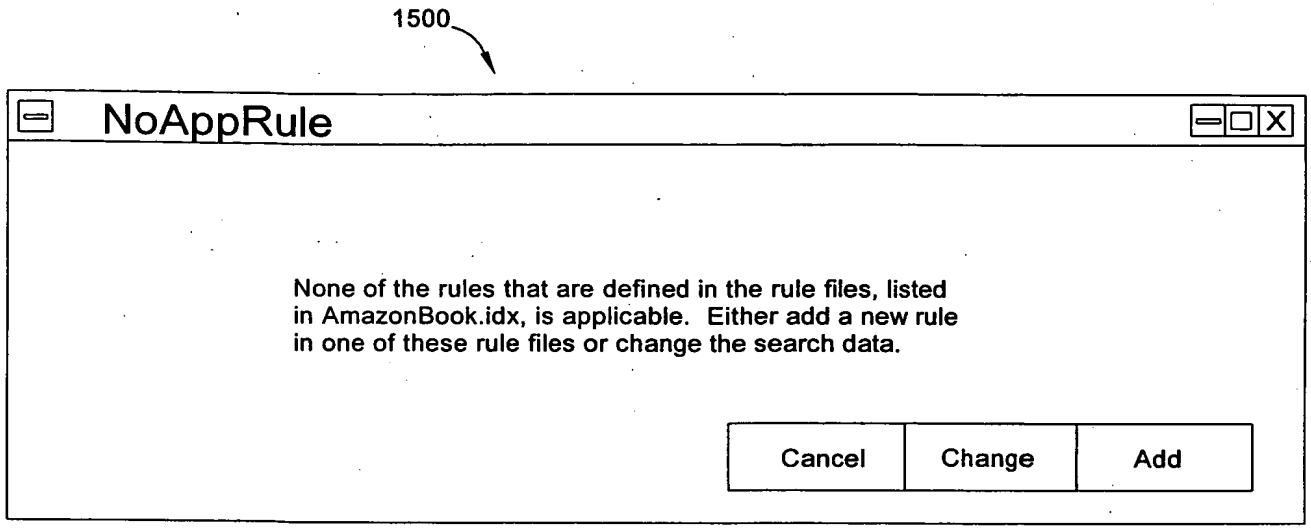
1500
NoAppRule
None of the rules that are defined in the rule files, listed in AmazonBook.idx, is applicable. Either add a new rule in one of these rule files or change the search data.
Cancel
Change
Add

FIG. 15

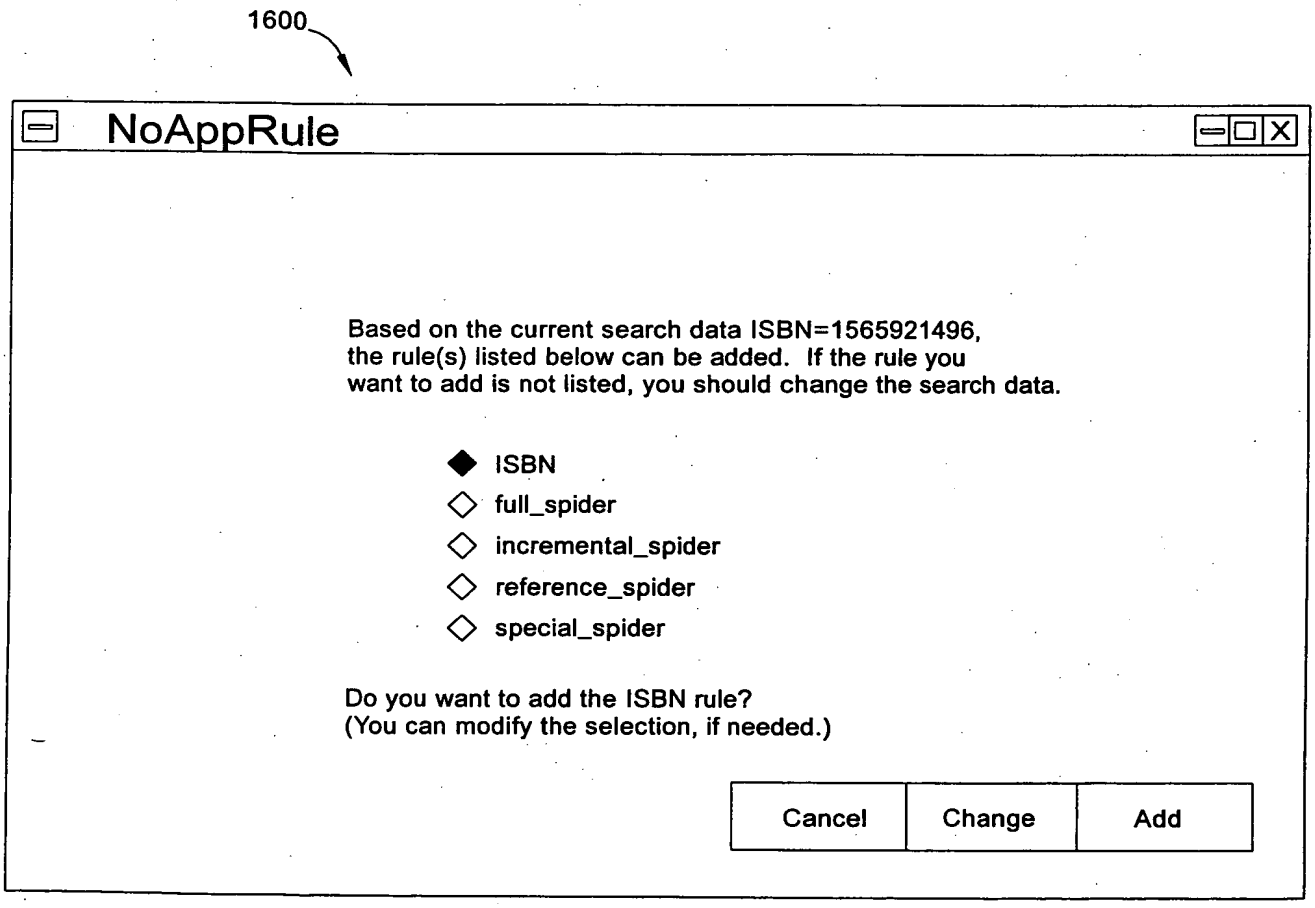
1600
NoAppRule
Based on the current search data ISBN=1565921496, the rule(s) listed below can be added. If the rule you want to add is not listed, you should change the search data.
ISBN
full_spider
incremental_spider
reference_spider
special_spider
Do you want to add the ISBN rule?
(You can modify the selection, if needed.)
Cancel
Change
Add

FIG. 16

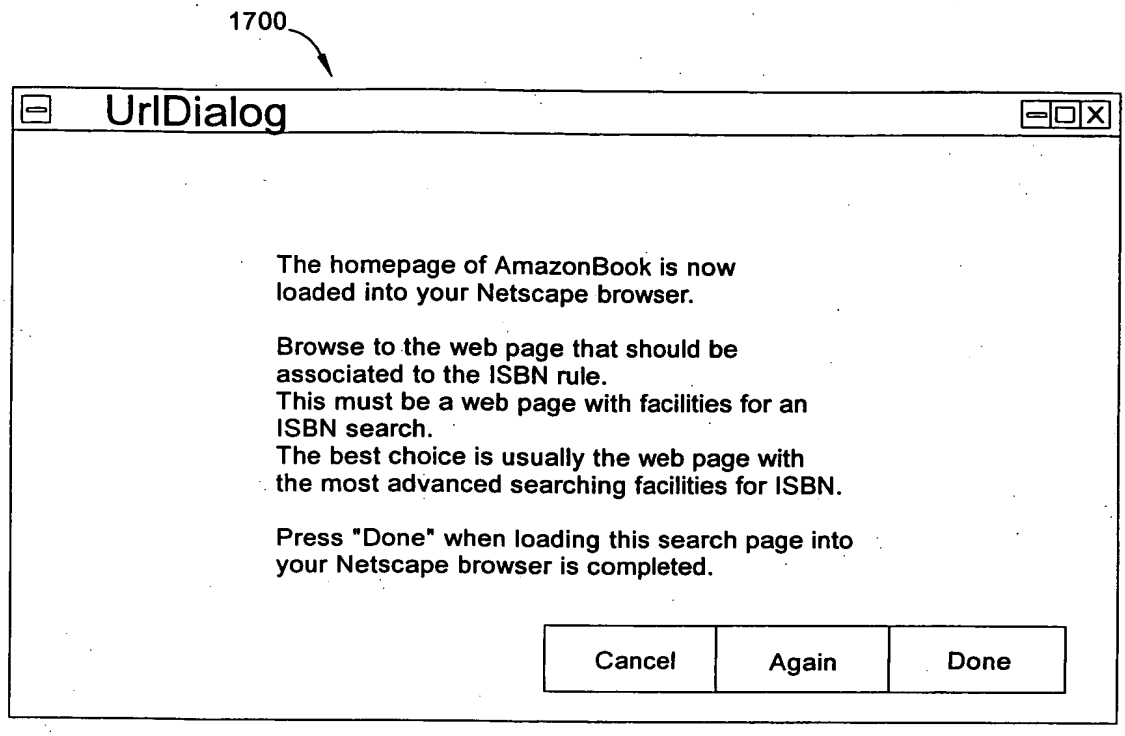
1700
UrlDialog
The homepage of AmazonBook is now loaded into your Netscape browser.
Browse to the web page that should be associated to the ISBN rule.
This must be a web page with facilities for an ISBN search.
The best choice is usually the web page with the most advanced searching facilities for ISBN.
Press "Done" when loading this search page into your Netscape browser is completed.
Cancel
Again
Done

FIG. 17

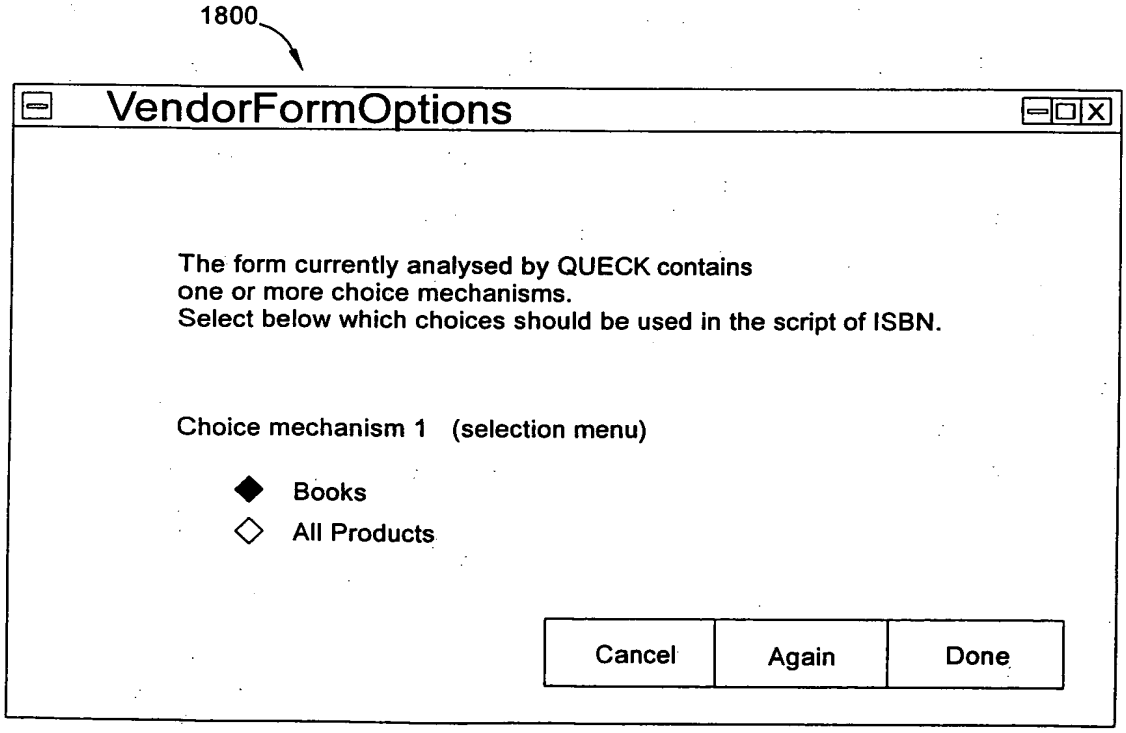
1800
VendorFormOptions
The form currently analysed by QUECK contains one or more choice mechanisms.
Select below which choices should be used in the script of ISBN.
Choice mechanism 1 (selection menu)
Books
All Products
Cancel
Again
Done

FIG. 18

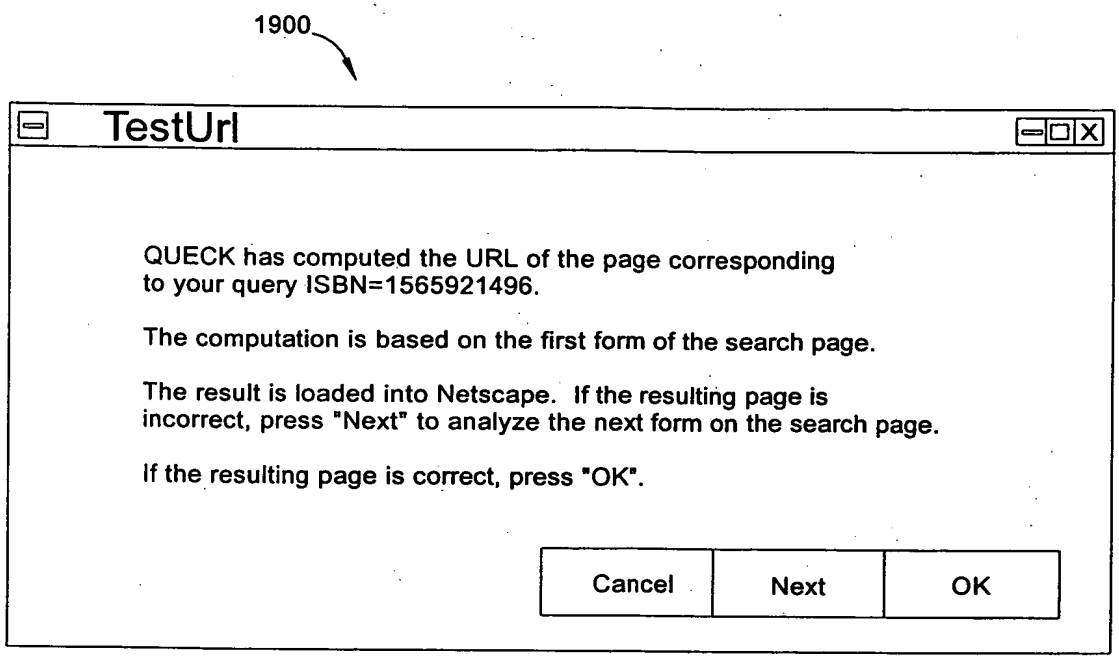
1900
TestUrl
QUECK has computed the URL of the page corresponding to your query ISBN=1565921496.
The computation is based on the first form of the search page.
The result is loaded into Netscape. If the resulting page is incorrect, press "Next" to analyze the next form on the search page.
If the resulting page is correct, press "OK".
Cancel
Next
OK

FIG. 19

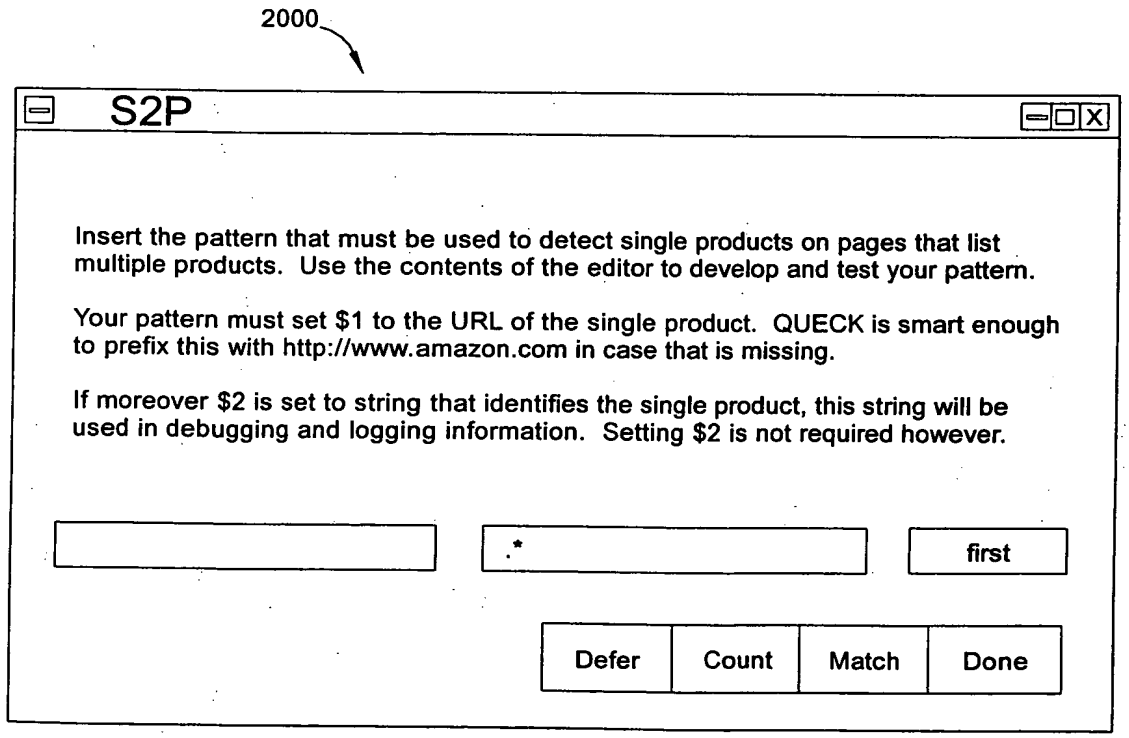
2000
S2P
Insert the pattern that must be used to detect single products on pages that list multiple products. Use the contents of the editor to develop and test your pattern.
Your pattern must set $1 to the URL of the single product. QUECK is smart enough to prefix this with http://www.amazon.com in case that is missing.
If moreover $2 is set to string that identifies the single product, this string will be used in debugging and logging information. Setting $2 is not required however.
.*
first
Defer
Count
Match
Done

FIG. 20

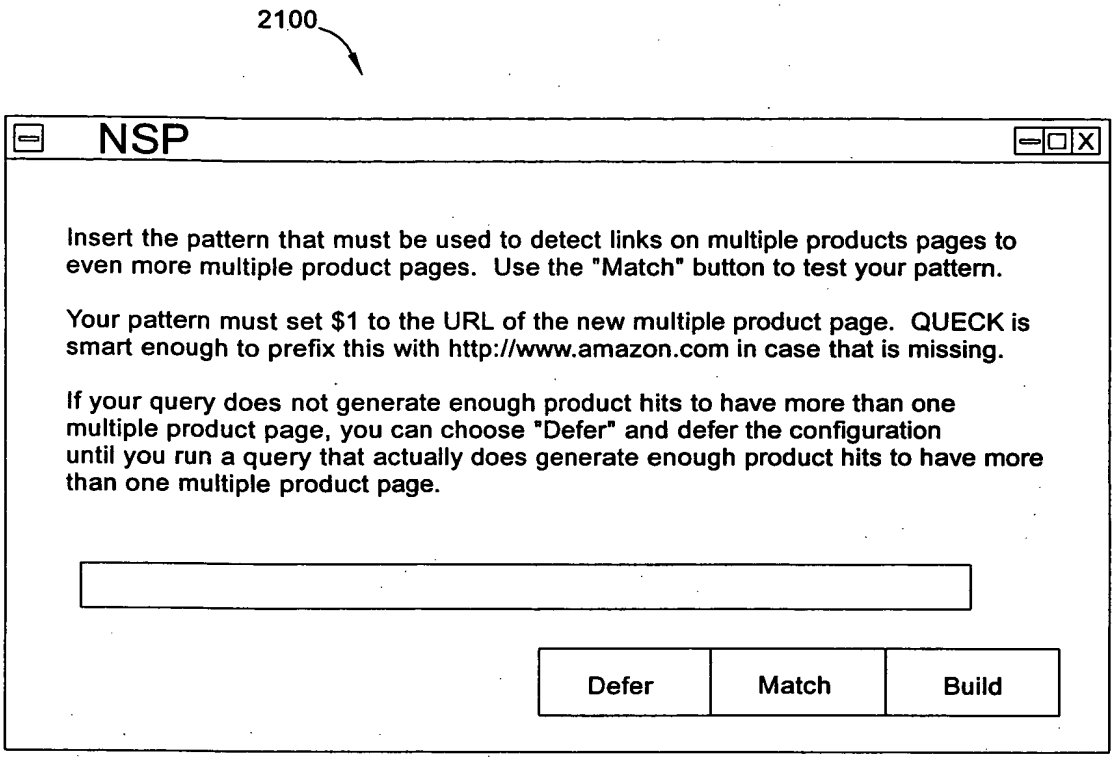
2100
NSP
Insert the pattern that must be used to detect links on multiple products pages to even more multiple product pages. Use the "Match" button to test your pattern.
Your pattern must set $1 to the URL of the new multiple product page. QUECK is smart enough to prefix this with http://www.amazon.com in case that is missing.
If your query does not generate enough product hits to have more than one multiple product page, you can choose "Defer" and defer the configuration until you run a query that actually does generate enough product hits to have more than one multiple product page.
Defer
Match
Build

FIG. 21

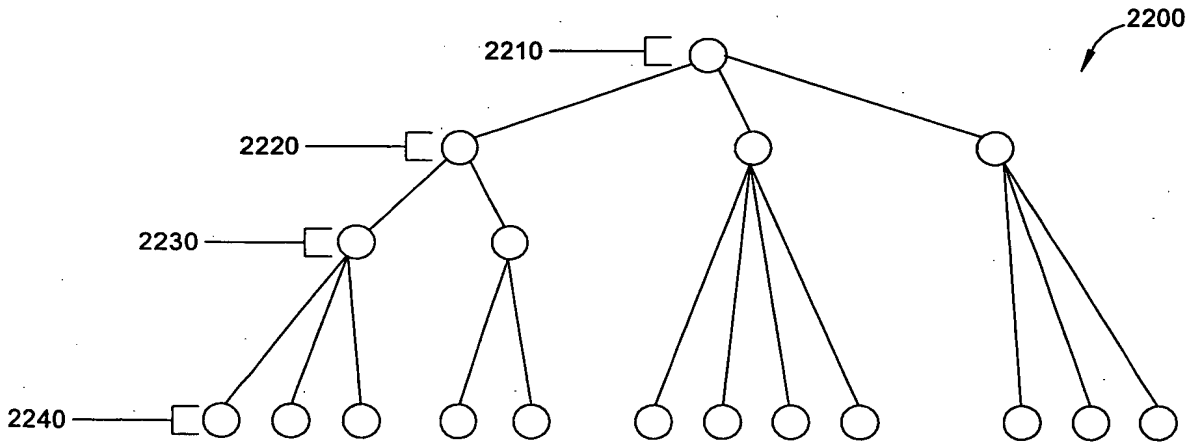
2200
2210
2220
2230
2240

FIG. 22

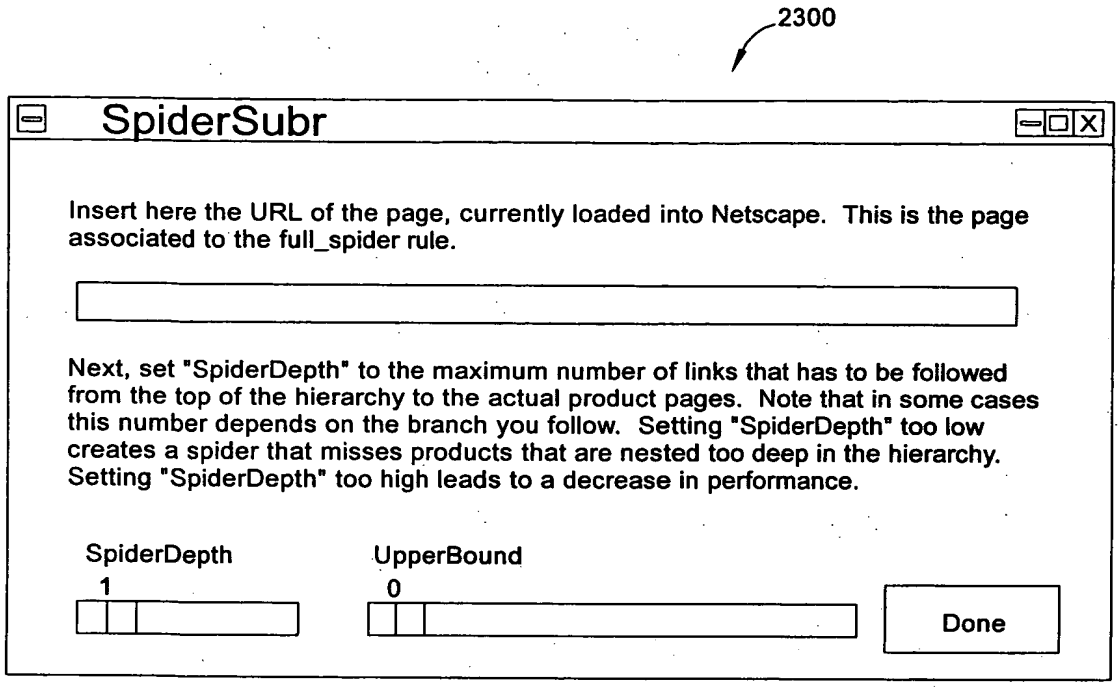
2300
SpiderSubr
Insert here the URL of the page, currently loaded into Netscape. This is the page associated to the full_spider rule.
Next, set "SpiderDepth" to the maximum number of links that has to be followed from the top of the hierarchy to the actual product pages. Note that in some cases this number depends on the branch you follow. Setting "SpiderDepth" too low creates a spider that misses products that are nested too deep in the hierarchy. Setting "SpiderDepth" too high leads to a decrease in performance.
SpiderDepth
1
UpperBound
0
Done

FIG. 23

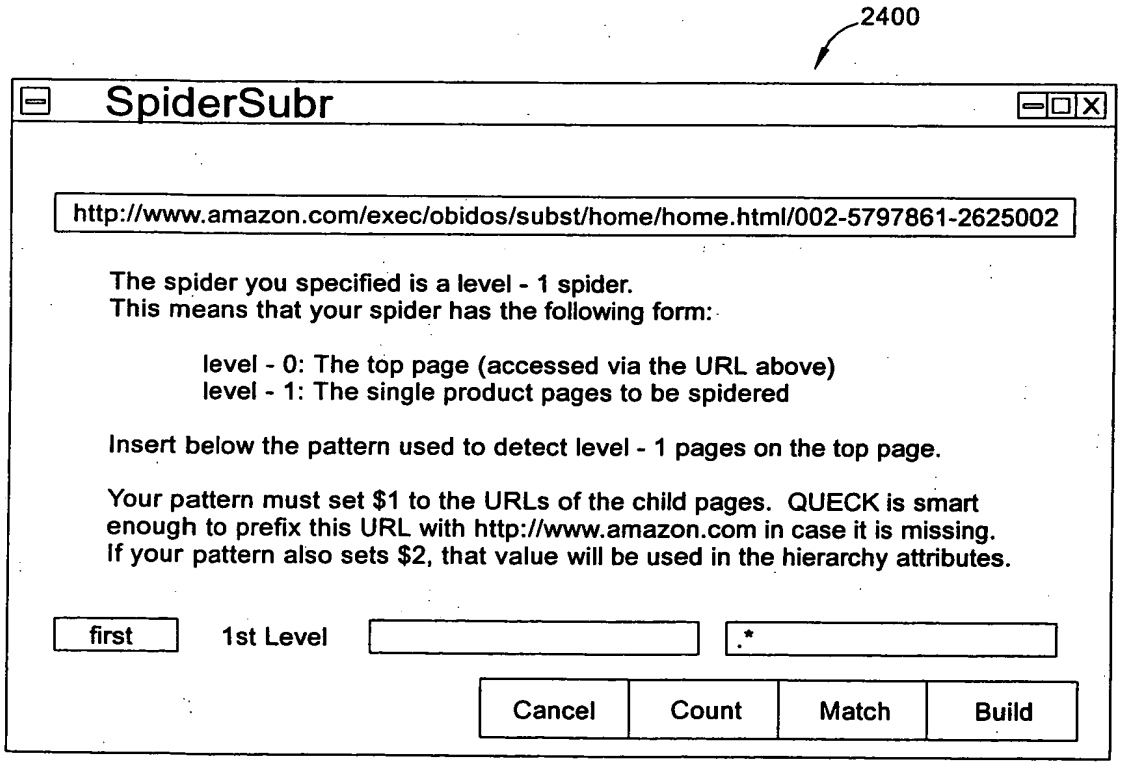
2400
SpiderSubr
http://www.amazon.com/exec/obidos/subst/home/home.html/002-5797861-2625002
The spider you specified is a level - 1 spider.
This means that your spider has the following form:
level - 0: The top page (accessed via the URL above)
level - 1: The single product pages to be spidered
Insert below the pattern used to detect level - 1 pages on the top page.
Your pattern must set $1 to the URLs of the child pages. QUECK is smart enough to prefix this URL with http://www.amazon.com in case it is missing. If your pattern also sets $2, that value will be used in the hierarchy attributes.
first
1st Level
.*
Cancel
Count
Match
Build

FIG. 24

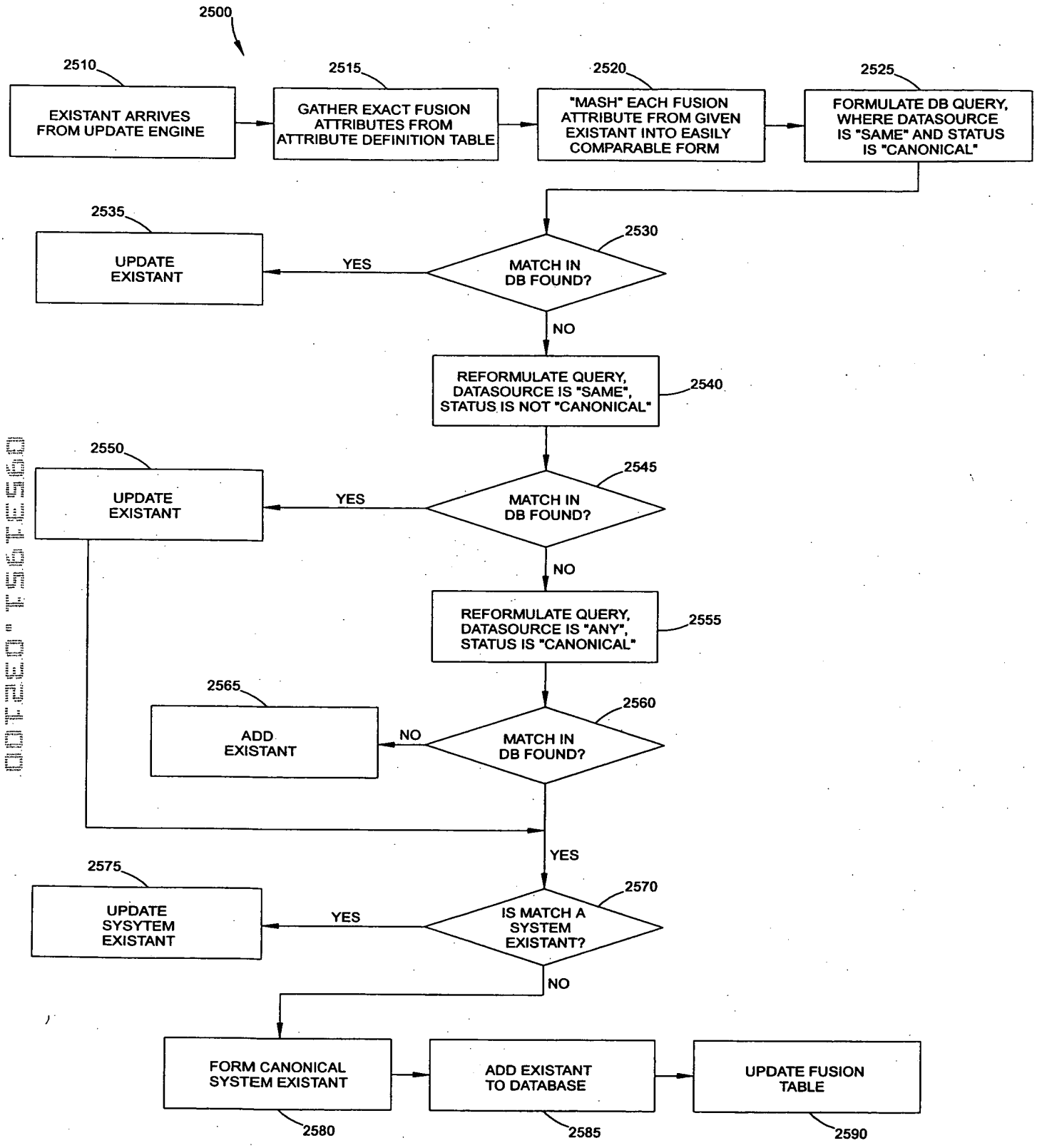
2500
2510
EXISTANT ARRIVES FROM UPDATE ENGINE
2515
GATHER EXACT FUSION ATTRIBUTES FROM ATTRIBUTE DEFINITION TABLE
2520
"MASH" EACH FUSION ATTRIBUTE FROM GIVEN EXISTANT INTO EASILY COMPARABLE FORM
2525
FORMULATE DB QUERY, WHERE DATASOURCE IS "SAME" AND STATUS IS "CANONICAL"
2530
MATCH IN DB FOUND?
YES
2535
UPDATE EXISTANT
NO
2540
REFORMULATE QUERY, DATASOURCE IS "SAME", STATUS IS NOT "CANONICAL"
2545
MATCH IN DB FOUND?
YES
2550
UPDATE EXISTANT
NO
2555
REFORMULATE QUERY, DATASOURCE IS "ANY", STATUS IS "CANONICAL"
2560
MATCH IN DB FOUND?
NO
2565
ADD EXISTANT
YES
2570
IS MATCH A SYSTEM EXISTANT?
YES
2575
UPDATE SYSYTEM EXISTANT
NO
2580
FORM CANONICAL SYSTEM EXISTANT
2585
ADD EXISTANT TO DATABASE
2590
UPDATE FUSION TABLE

FIG. 25

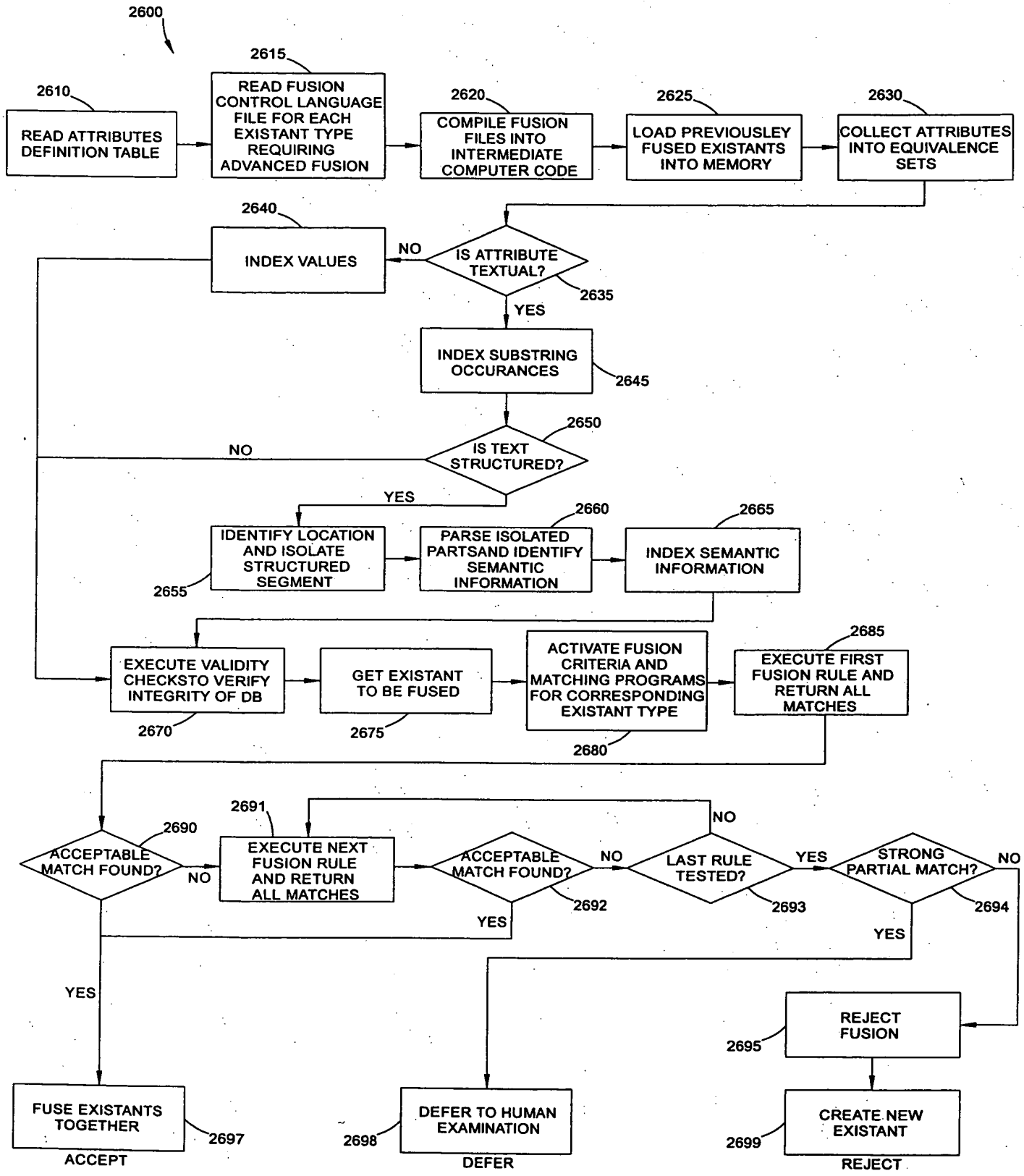
2600
2610
READ ATTRIBUTES DEFINITION TABLE
2615
READ FUSION CONTROL LANGUAGE FILE FOR EACH EXISTANT TYPE REQUIRING ADVANCED FUSION
2620
COMPILE FUSION FILES INTO INTERMEDIATE COMPUTER CODE
2625
LOAD PREVIOUSLEY FUSED EXISTANTS INTO MEMORY
2630
COLLECT ATTRIBUTES INTO EQUIVALENCE SETS
2640
INDEX VALUES
NO
IS ATTRIBUTE TEXTUAL?
2635
YES
INDEX SUBSTRING OCCURANCES
2645
2650
IS TEXT STRUCTURED?
NO
YES
2655
IDENTIFY LOCATION AND ISOLATE STRUCTURED SEGMENT
2660
PARSE ISOLATED PARTSAND IDENTIFY SEMANTIC INFORMATION
2665
INDEX SEMANTIC INFORMATION
2670
EXECUTE VALIDITY CHECKSTO VERIFY INTEGRITY OF DB
2675
GET EXISTANT TO BE FUSED
2680
ACTIVATE FUSION CRITERIA AND MATCHING PROGRAMS FOR CORRESPONDING EXISTANT TYPE
2685
EXECUTE FIRST FUSION RULE AND RETURN ALL MATCHES
2690
ACCEPTABLE MATCH FOUND?
NO
2691
EXECUTE NEXT FUSION RULE AND RETURN ALL MATCHES
ACCEPTABLE MATCH FOUND?
NO
2692
YES
LAST RULE TESTED?
NO
2693
YES
STRONG PARTIAL MATCH?
NO
2694
YES
YES
REJECT FUSION
2695
FUSE EXISTANTS TOGETHER
2697
ACCEPT
DEFER TO HUMAN EXAMINATION
2698
DEFER
CREATE NEW EXISTANT
2699
REJECT

FIG. 26

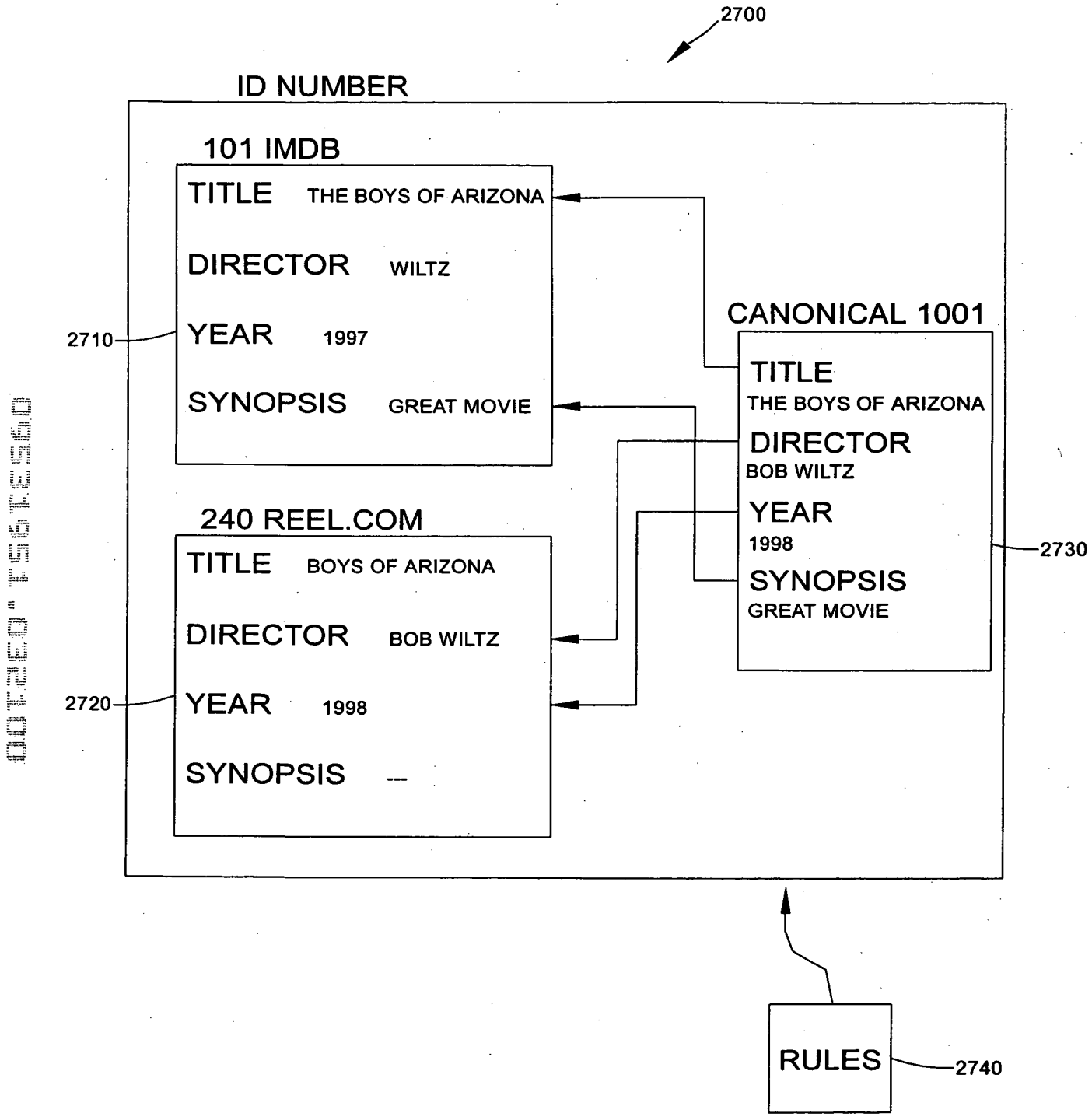
2700
ID NUMBER
101 IMDB
TITLE THE BOYS OF ARIZONA
DIRECTOR WILTZ
YEAR 1997
SYNOPSIS GREAT MOVIE
2710
240 REEL.COM
TITLE BOYS OF ARIZONA
DIRECTOR BOB WILTZ
YEAR 1998
SYNOPSIS ---
2720
CANONICAL 1001
TITLE
THE BOYS OF ARIZONA
DIRECTOR
BOB WILTZ
YEAR
1998
SYNOPSIS
GREAT MOVIE
2730
RULES
2740

FIG. 27

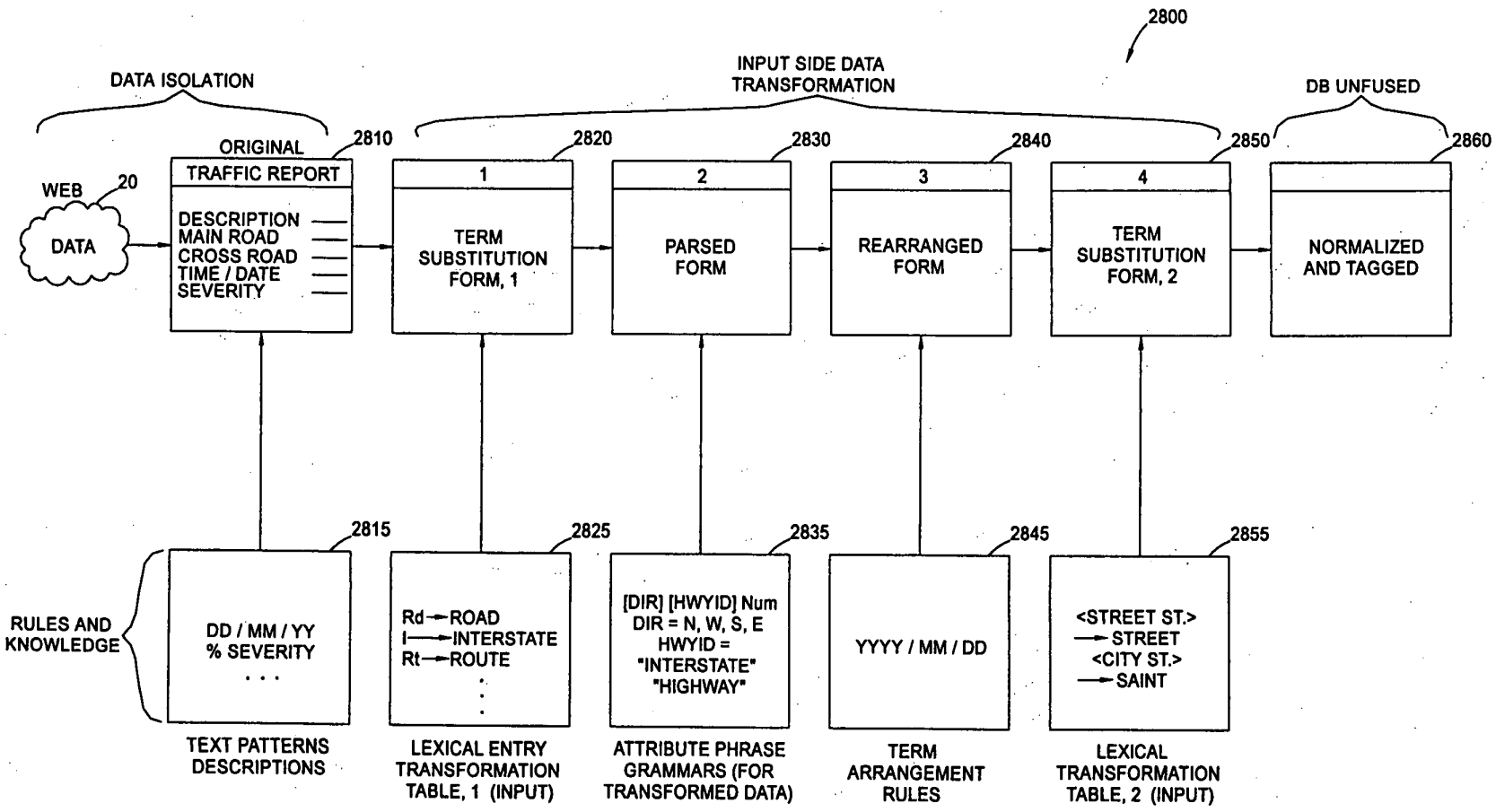
2800
DATA ISOLATION
INPUT SIDE DATA TRANSFORMATION
DB UNFUSED
ORIGINAL TRAFFIC REPORT
2810
2820
2830
2840
2850
2860
WEB
20
DATA
DESCRIPTION
MAIN ROAD
CROSS ROAD
TIME / DATE
SEVERITY
1
TERM SUBSTITUTION FORM, 1
2
PARSED FORM
3
REARRANGED FORM
4
TERM SUBSTITUTION FORM, 2
NORMALIZED AND TAGGED
RULES AND KNOWLEDGE
2815
2825
2835
2845
2855
DD / MM / YY
% SEVERITY
Rd→ROAD
I→INTERSTATE
Rt→ROUTE
[DIR] [HWYID] Num
DIR = N, W, S, E
HWYID =
"INTERSTATE"
"HIGHWAY"
YYYY / MM / DD
<STREET ST.>
→STREET
<CITY ST.>
→SAINT
TEXT PATTERNS DESCRIPTIONS
LEXICAL ENTRY TRANSFORMATION TABLE, 1 (INPUT)
ATTRIBUTE PHRASE GRAMMARS (FOR TRANSFORMED DATA)
TERM ARRANGEMENT RULES
LEXICAL TRANSFORMATION TABLE, 2 (INPUT)

FIG. 28

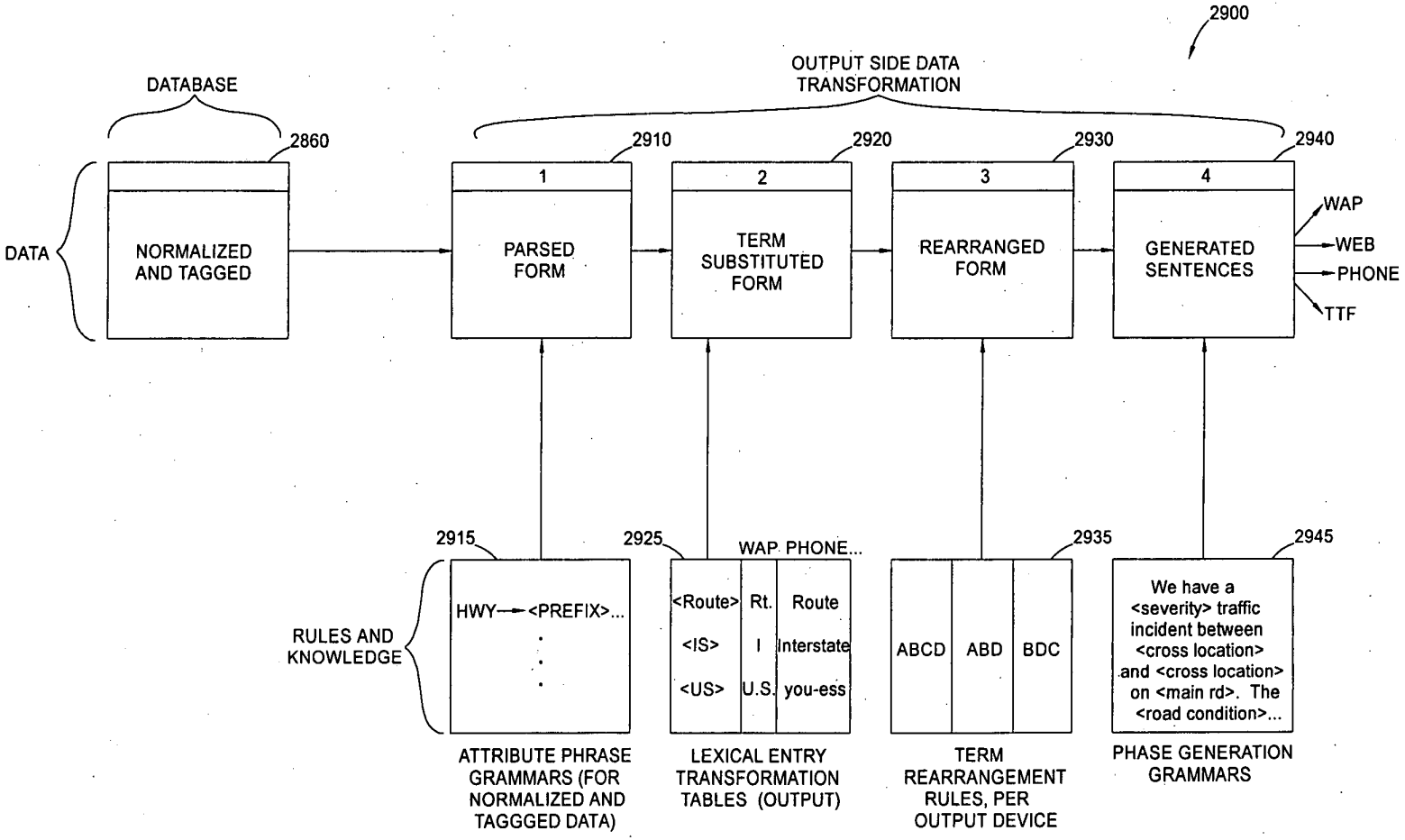

FIG. 29

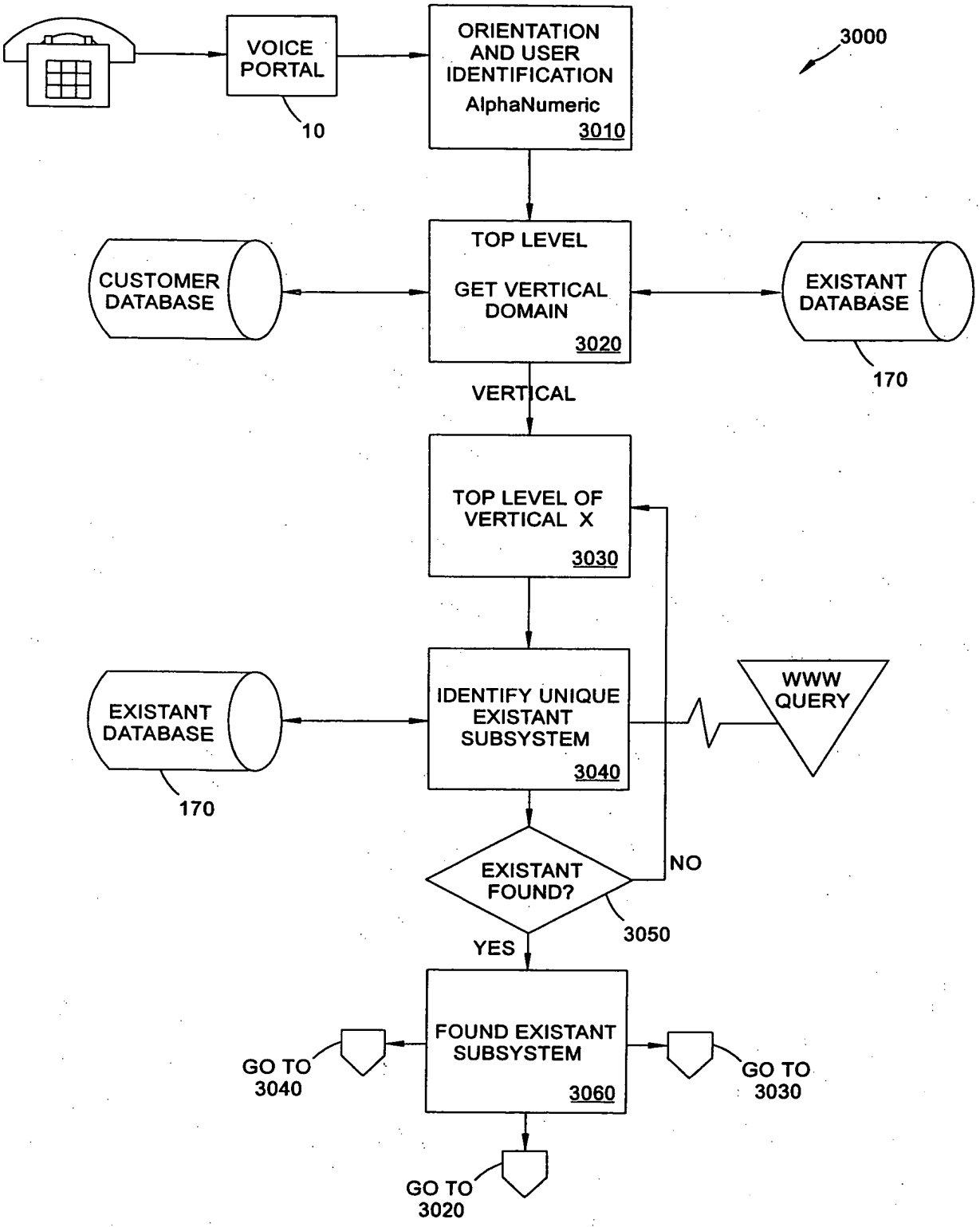
3000
VOICE PORTAL
10
ORIENTATION AND USER IDENTIFICATION
AlphaNumeric
3010
TOP LEVEL
GET VERTICAL DOMAIN
3020
CUSTOMER DATABASE
EXISTANT DATABASE
170
VERTICAL
TOP LEVEL OF VERTICAL X
3030
IDENTIFY UNIQUE EXISTANT SUBSYSTEM
3040
EXISTANT DATABASE
170
WWW QUERY
EXISTANT FOUND?
3050
NO
YES
FOUND EXISTANT SUBSYSTEM
3060
GO TO 3040
GO TO 3030
GO TO 3020

FIG. 30

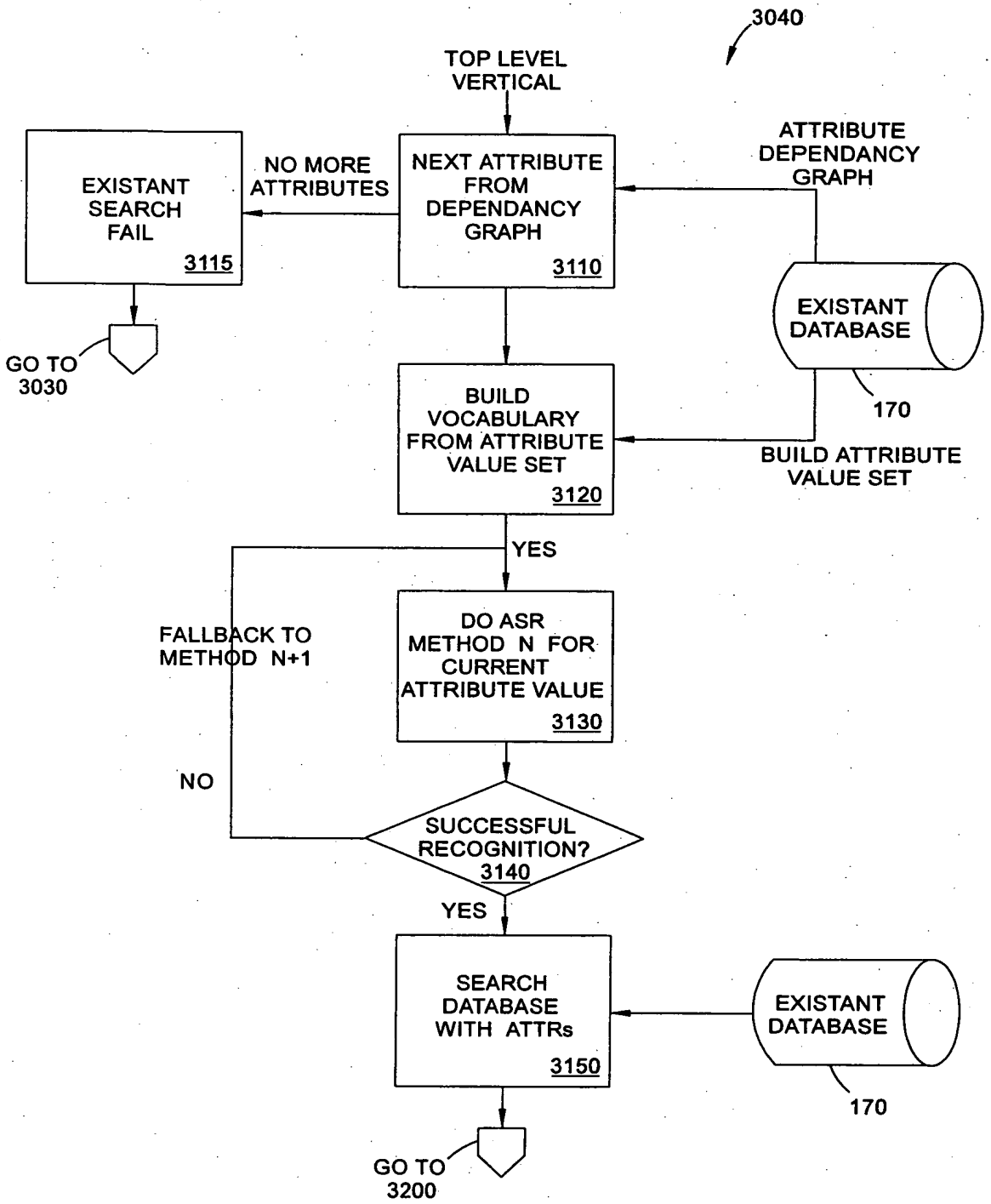
3040
TOP LEVEL VERTICAL
NEXT ATTRIBUTE FROM DEPENDANCY GRAPH
3110
ATTRIBUTE DEPENDANCY GRAPH
NO MORE ATTRIBUTES
EXISTANT SEARCH FAIL
3115
GO TO 3030
EXISTANT DATABASE
170
BUILD VOCABULARY FROM ATTRIBUTE VALUE SET
3120
BUILD ATTRIBUTE VALUE SET
YES
FALLBACK TO METHOD N+1
DO ASR METHOD N FOR CURRENT ATTRIBUTE VALUE
3130
NO
SUCCESSFUL RECOGNITION?
3140
YES
SEARCH DATABASE WITH ATTRs
3150
EXISTANT DATABASE
170
GO TO 3200

FIG. 31

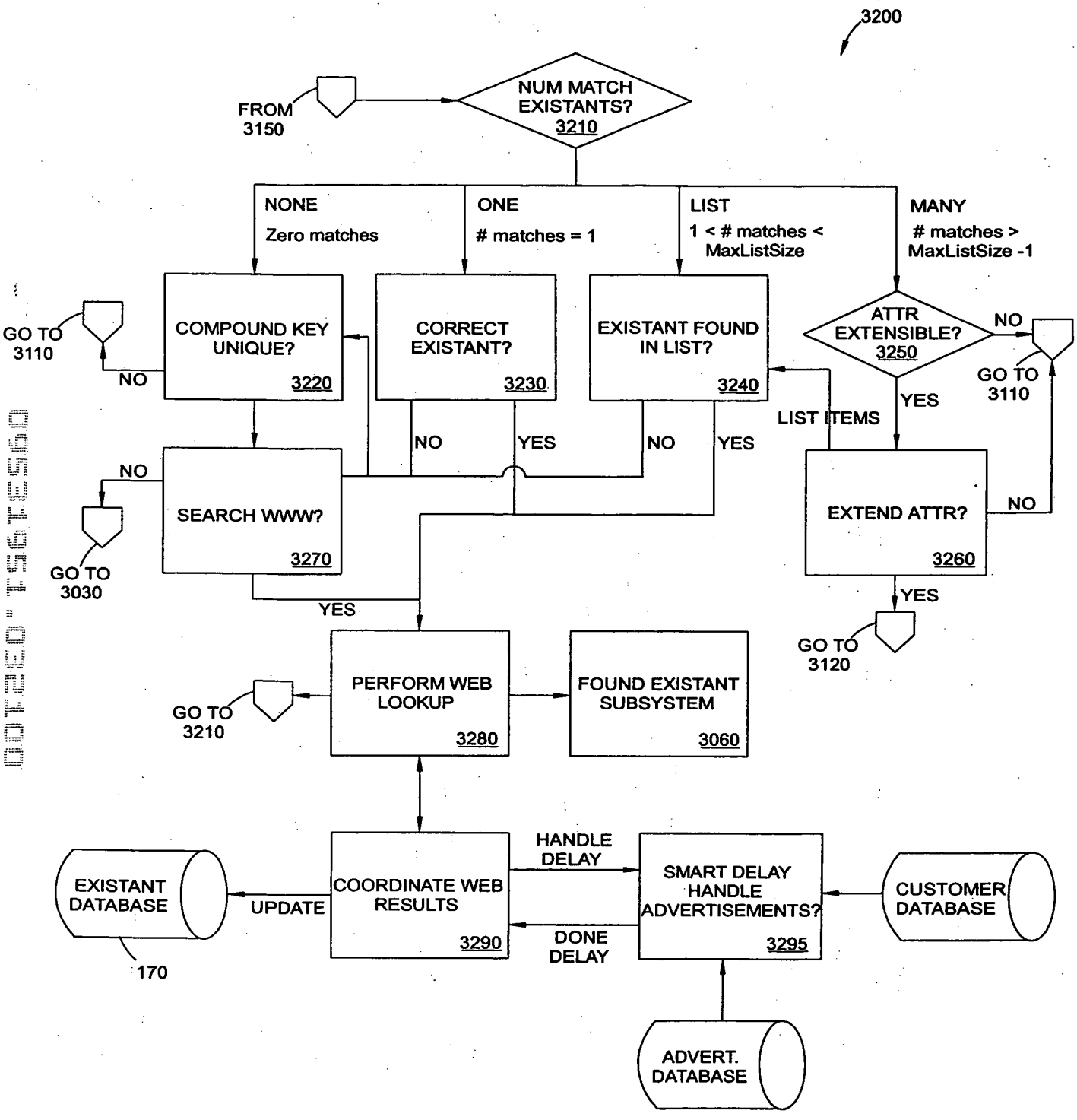
3200
FROM 3150
NUM MATCH EXISTANTS? 3210
NONE
Zero matches
ONE
matches = 1
LIST
1 < # matches < MaxListSize
MANY
matches > MaxListSize -1
GO TO 3110
COMPOUND KEY UNIQUE? 3220
CORRECT EXISTANT? 3230
EXISTANT FOUND IN LIST? 3240
ATTR EXTENSIBLE? 3250
NO
YES
GO TO 3110
LIST ITEMS
NO
YES
NO
YES
NO
SEARCH WWW? 3270
EXTEND ATTR? 3260
NO
GO TO 3030
YES
YES
GO TO 3120
GO TO 3210
PERFORM WEB LOOKUP 3280
FOUND EXISTANT SUBSYSTEM 3060
HANDLE DELAY
EXISTANT DATABASE
UPDATE
COORDINATE WEB RESULTS 3290
DONE DELAY
SMART DELAY HANDLE ADVERTISEMENTS? 3295
CUSTOMER DATABASE
170
ADVERT. DATABASE

FIG. 32

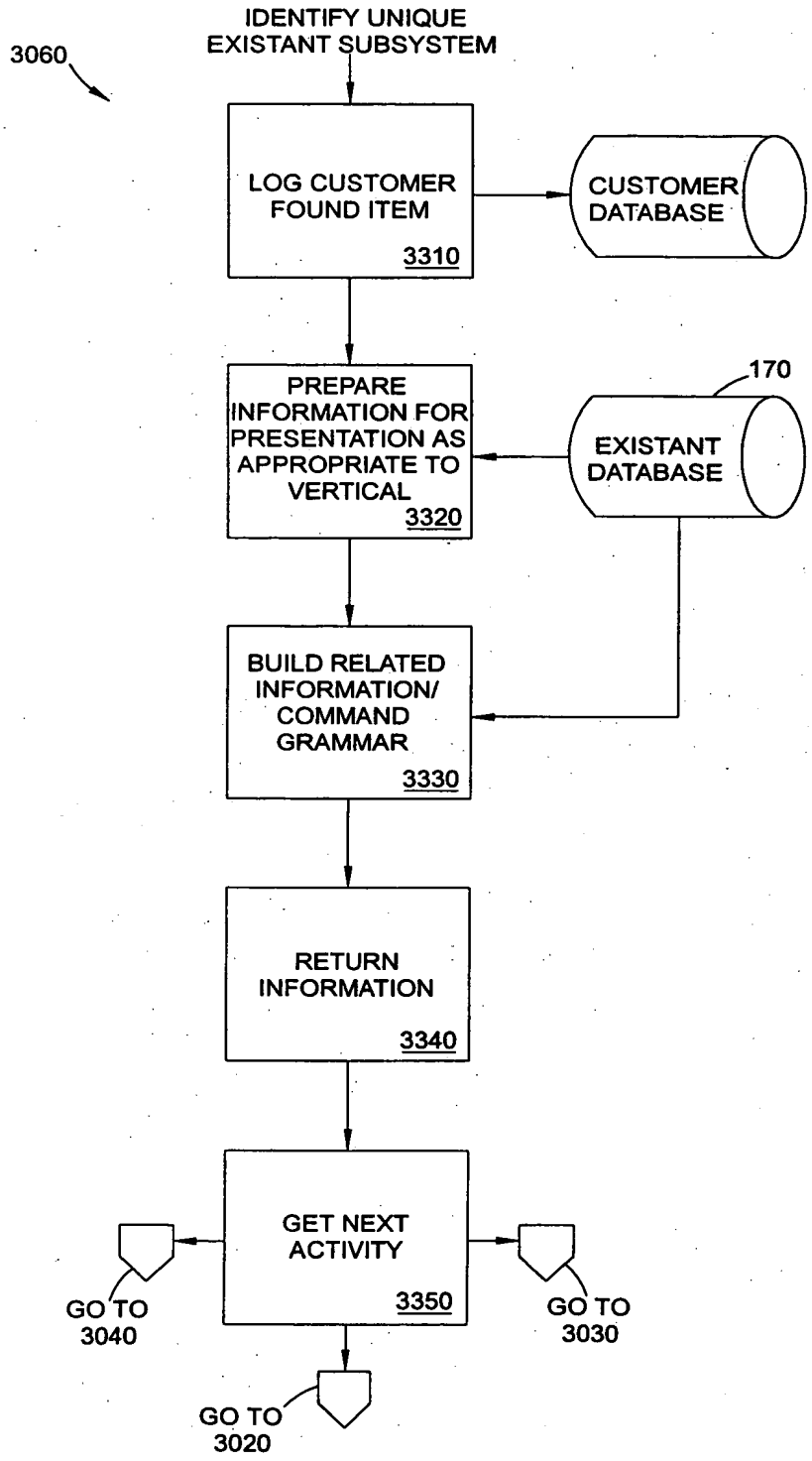
3060
IDENTIFY UNIQUE EXISTANT SUBSYSTEM
LOG CUSTOMER FOUND ITEM
3310
CUSTOMER DATABASE
PREPARE INFORMATION FOR PRESENTATION AS APPROPRIATE TO VERTICAL
3320
170
EXISTANT DATABASE
BUILD RELATED INFORMATION/ COMMAND GRAMMAR
3330
RETURN INFORMATION
3340
GET NEXT ACTIVITY
3350
GO TO 3040
GO TO 3030
GO TO 3020

FIG. 33

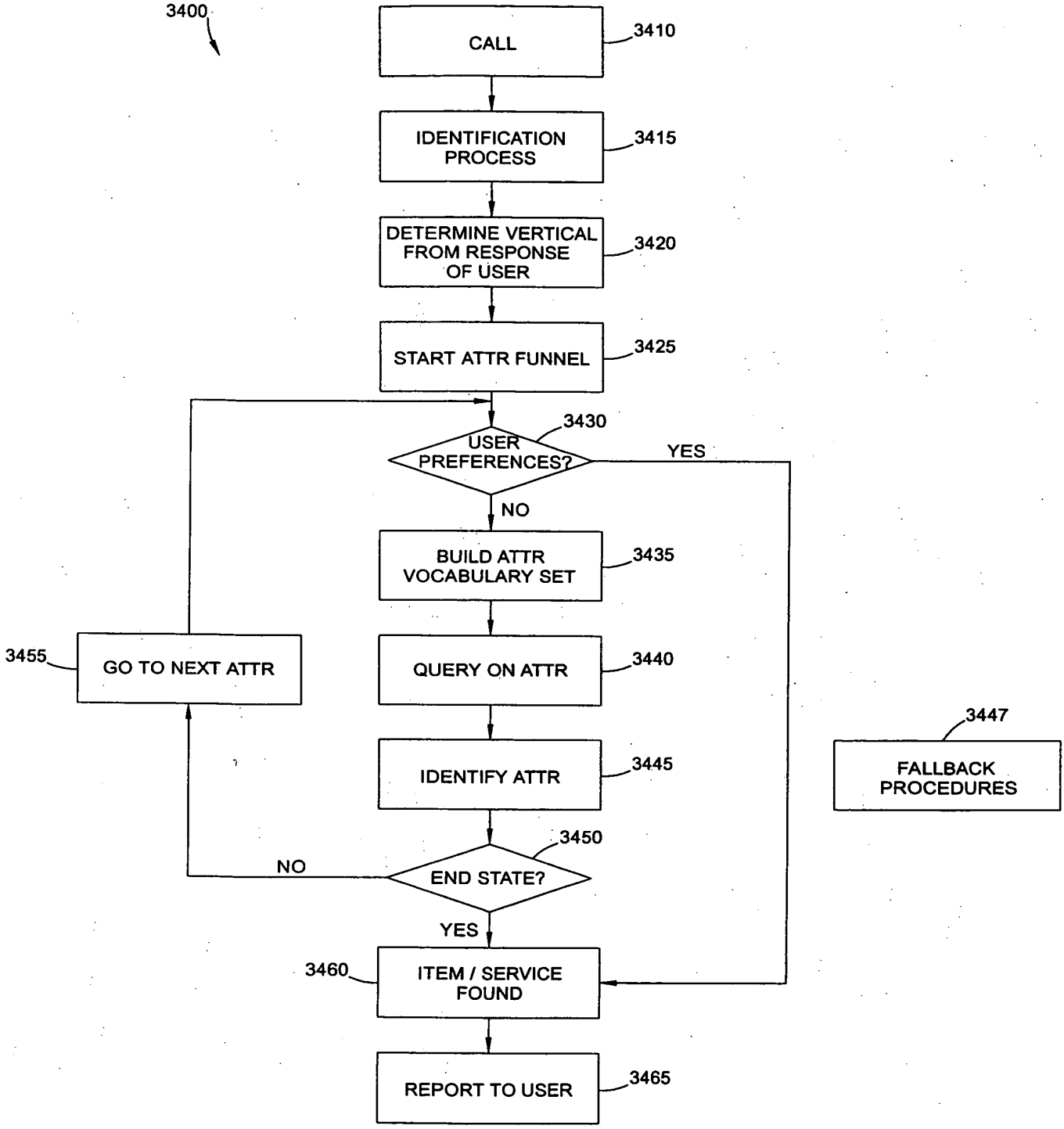

FIG. 34

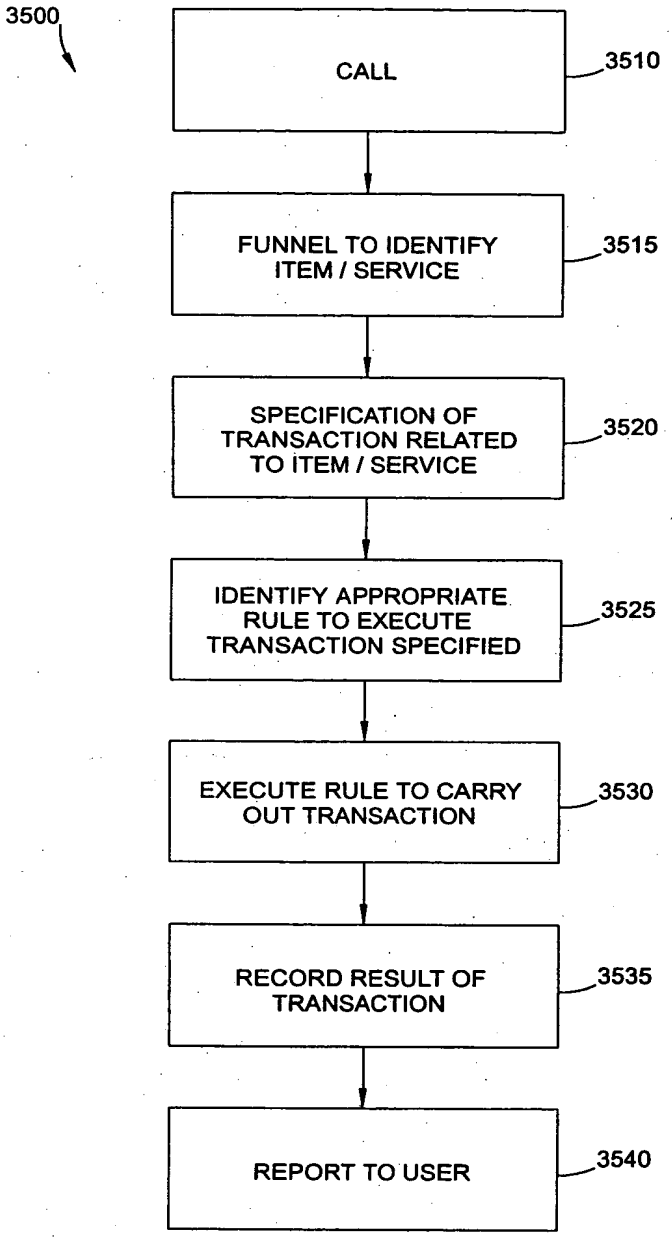
3500
CALL
3510
FUNNEL TO IDENTIFY ITEM / SERVICE
3515
SPECIFICATION OF TRANSACTION RELATED TO ITEM / SERVICE
3520
IDENTIFY APPROPRIATE RULE TO EXECUTE TRANSACTION SPECIFIED
3525
EXECUTE RULE TO CARRY OUT TRANSACTION
3530
RECORD RESULT OF TRANSACTION
3535
REPORT TO USER
3540

FIG. 35

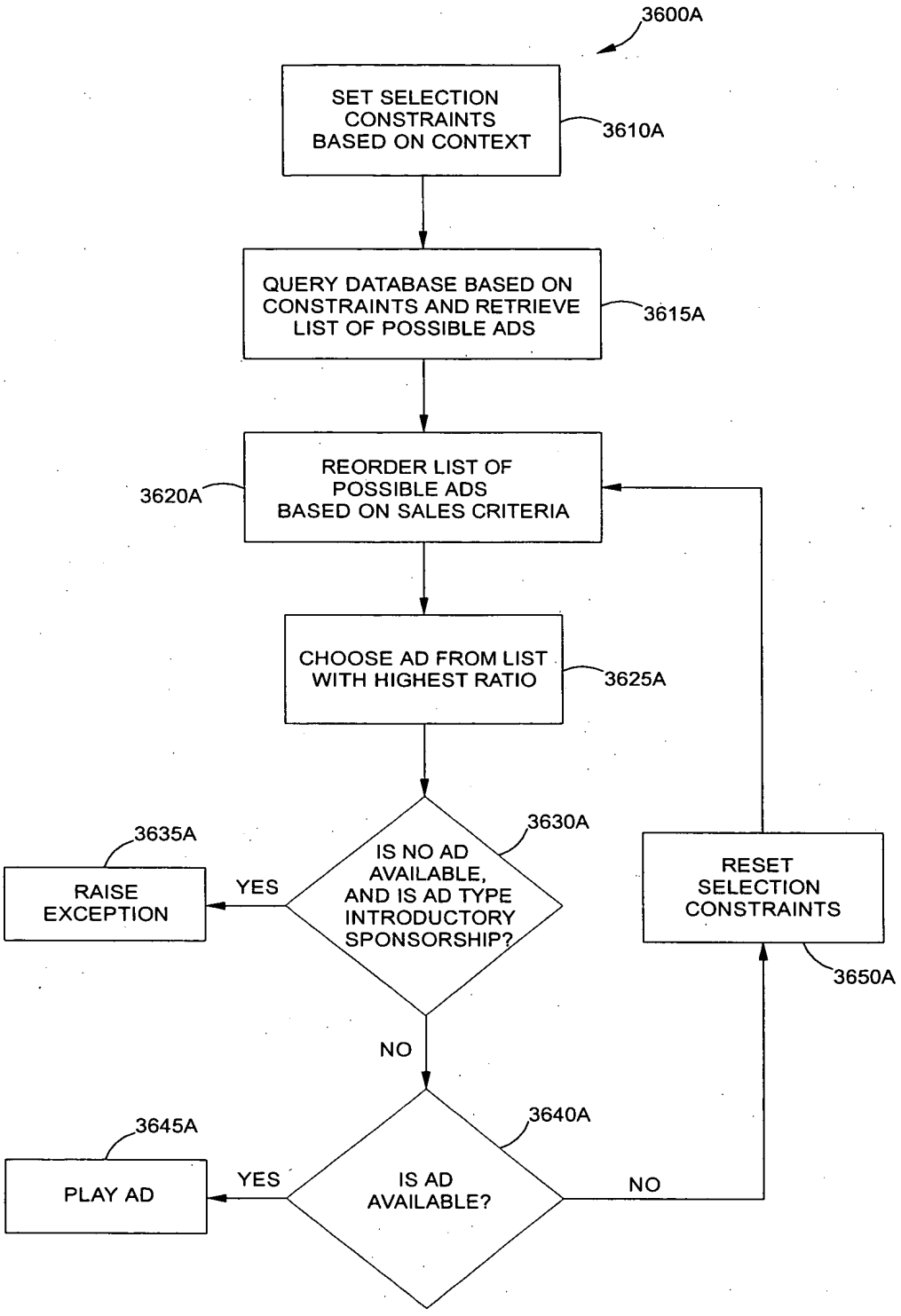

FIG. 36A

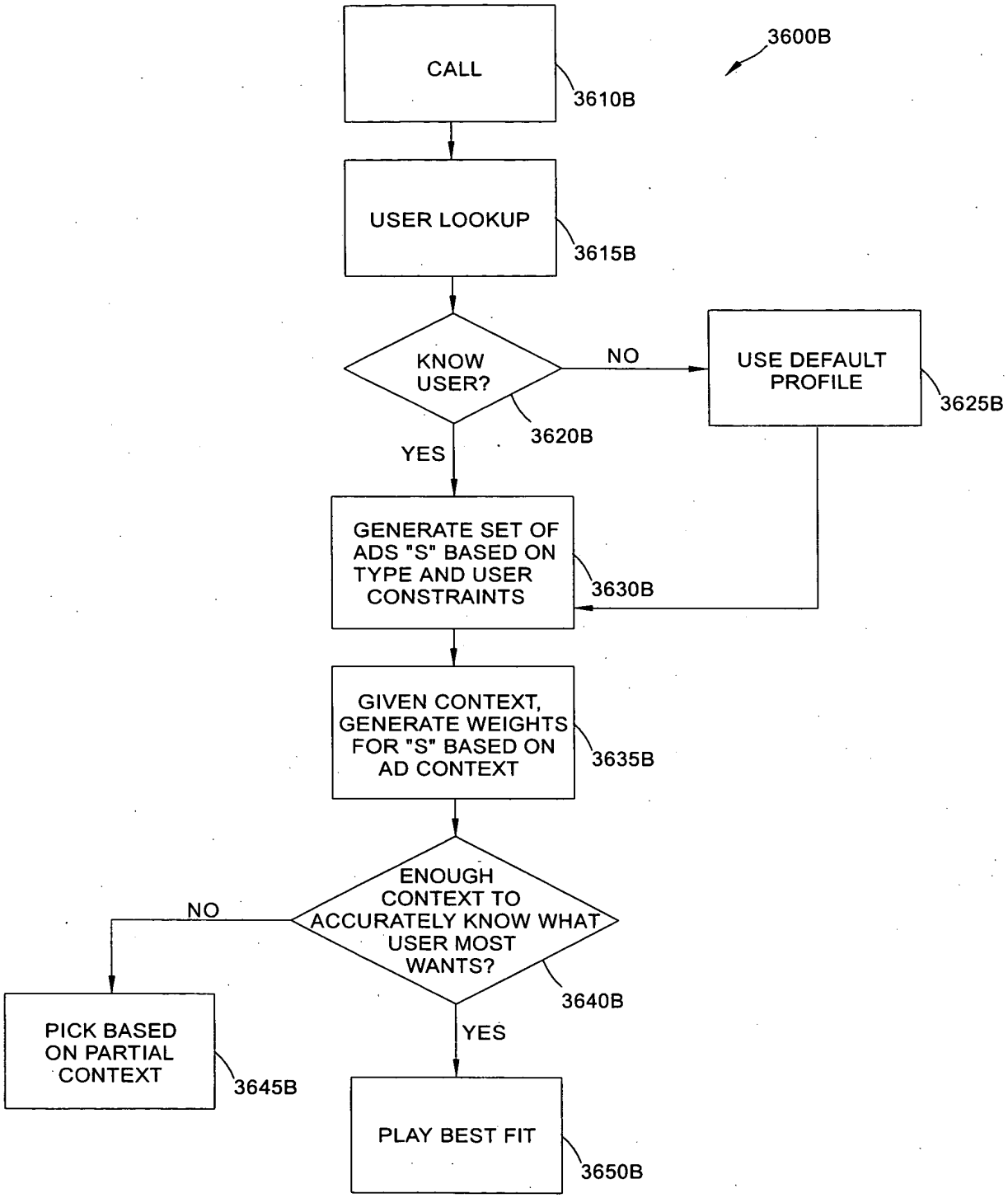

FIG. 36B

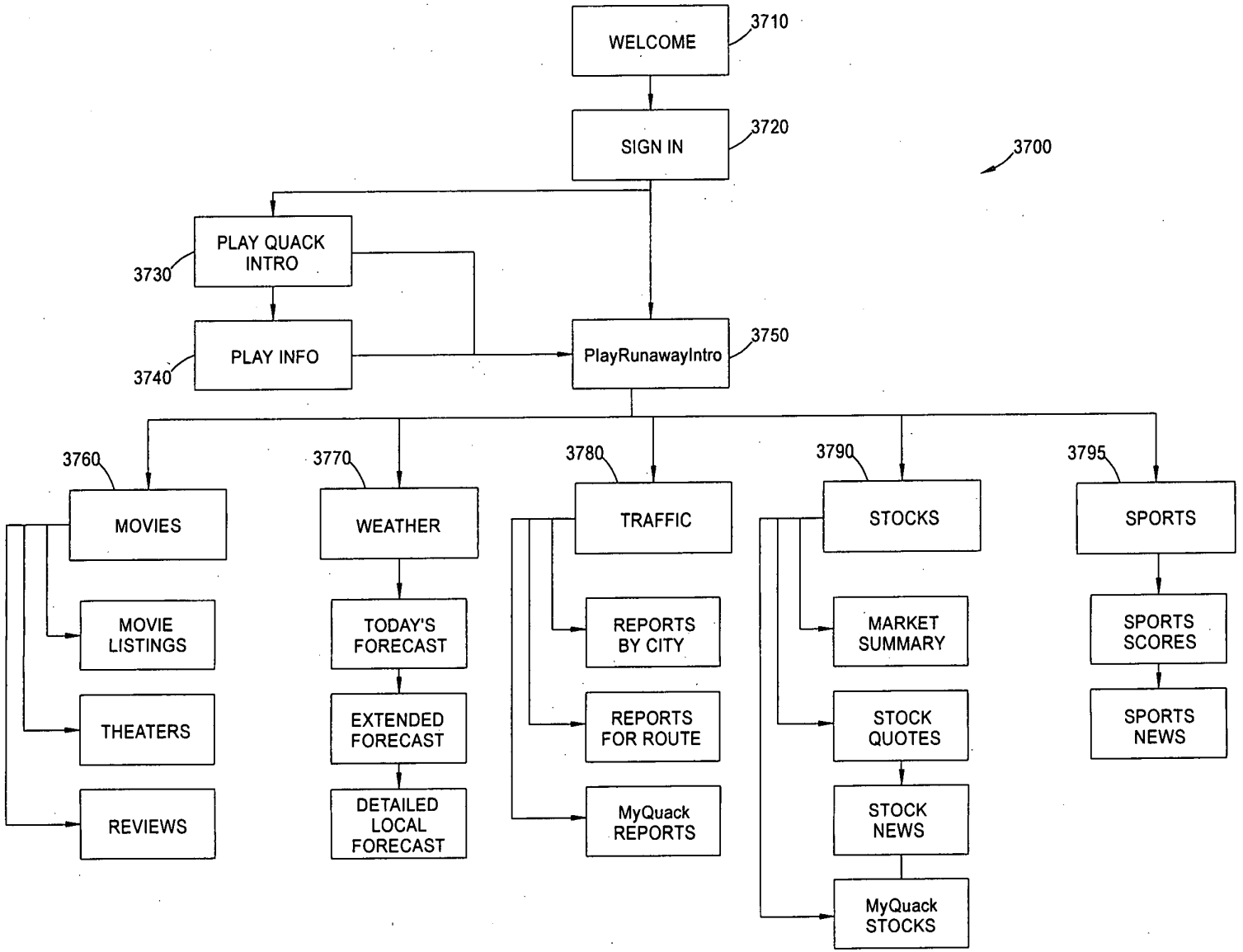
WELCOME
3710
SIGN IN
3720
3700
PLAY QUACK INTRO
3730
PLAY INFO
3740
PlayRunawayIntro
3750
3760
MOVIES
MOVIE LISTINGS
THEATERS
REVIEWS
3770
WEATHER
TODAY'S FORECAST
EXTENDED FORECAST
DETAILED LOCAL FORECAST
3780
TRAFFIC
REPORTS BY CITY
REPORTS FOR ROUTE
MyQuack REPORTS
3790
STOCKS
MARKET SUMMARY
STOCK QUOTES
STOCK NEWS
MyQuack STOCKS
3795
SPORTS
SPORTS SCORES
SPORTS NEWS

FIG. 37

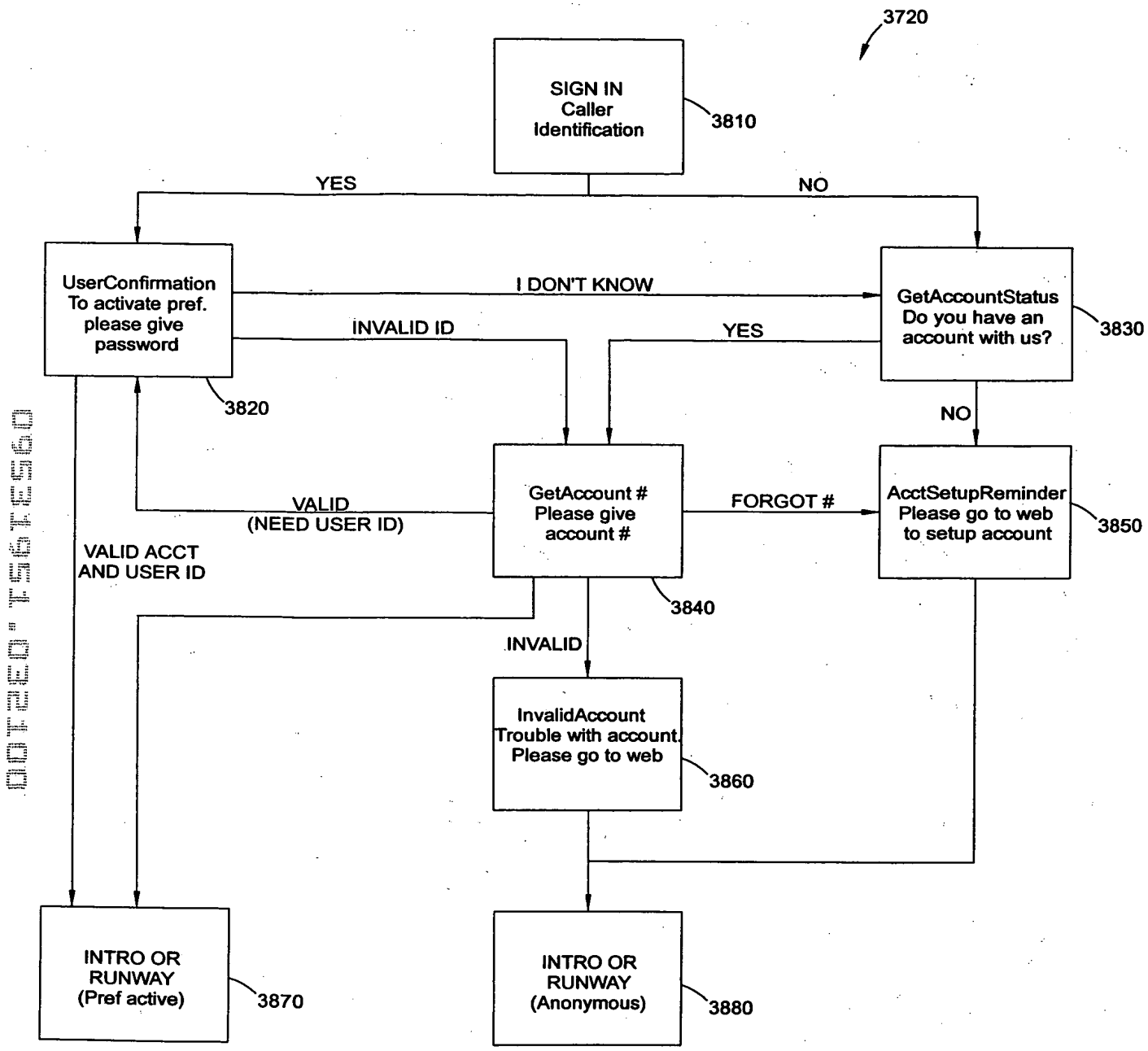
3720
SIGN IN
Caller
Identification
3810
YES
NO
UserConfirmation
To activate pref.
please give
password
I DON'T KNOW
INVALID ID
YES
GetAccountStatus
Do you have an
account with us?
3830
3820
NO
VALID
(NEED USER ID)
GetAccount #
Please give
account #
FORGOT #
AcctSetupReminder
Please go to web
to setup account
3850
VALID ACCT
AND USER ID
3840
INVALID
InvalidAccount
Trouble with account.
Please go to web
3860
INTRO OR
RUNWAY
(Pref active)
3870
INTRO OR
RUNWAY
(Anonymous)
3880

FIG. 38

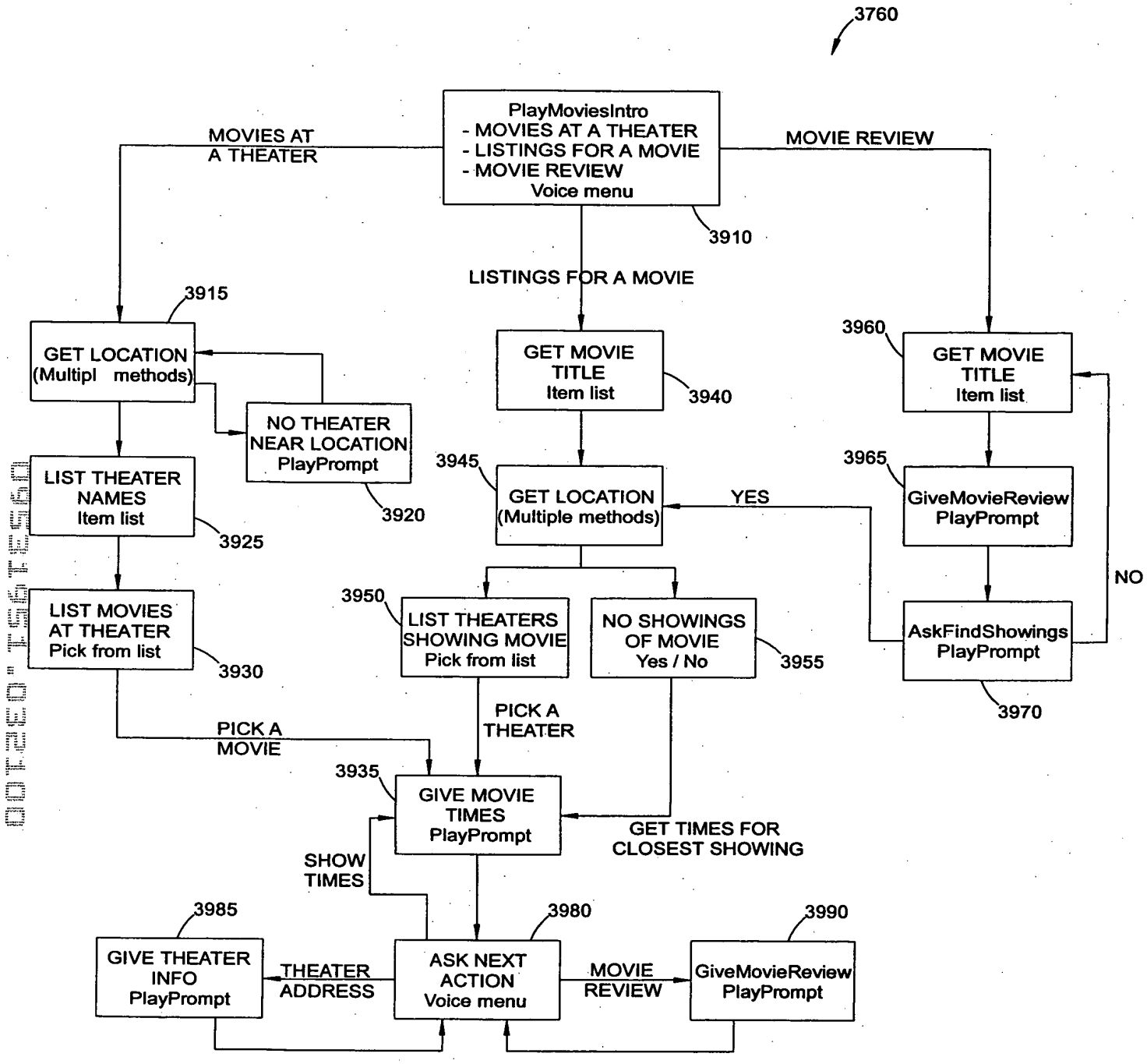
3760
PlayMoviesIntro
- MOVIES AT A THEATER
- LISTINGS FOR A MOVIE
- MOVIE REVIEW
Voice menu
3910
MOVIES AT A THEATER
LISTINGS FOR A MOVIE
MOVIE REVIEW
3915
GET LOCATION (Multipl methods)
NO THEATER NEAR LOCATION PlayPrompt
3920
LIST THEATER NAMES Item list
3925
LIST MOVIES AT THEATER Pick from list
3930
GET MOVIE TITLE Item list
3940
3945
GET LOCATION (Multiple methods)
YES
3950
LIST THEATERS SHOWING MOVIE Pick from list
NO SHOWINGS OF MOVIE Yes / No
3955
PICK A MOVIE
PICK A THEATER
3935
GIVE MOVIE TIMES PlayPrompt
GET TIMES FOR CLOSEST SHOWING
SHOW TIMES
3960
GET MOVIE TITLE Item list
3965
GiveMovieReview PlayPrompt
AskFindShowings PlayPrompt
3970
NO
3985
GIVE THEATER INFO PlayPrompt
THEATER ADDRESS
3980
ASK NEXT ACTION Voice menu
MOVIE REVIEW
3990
GiveMovieReview PlayPrompt

FIG. 39

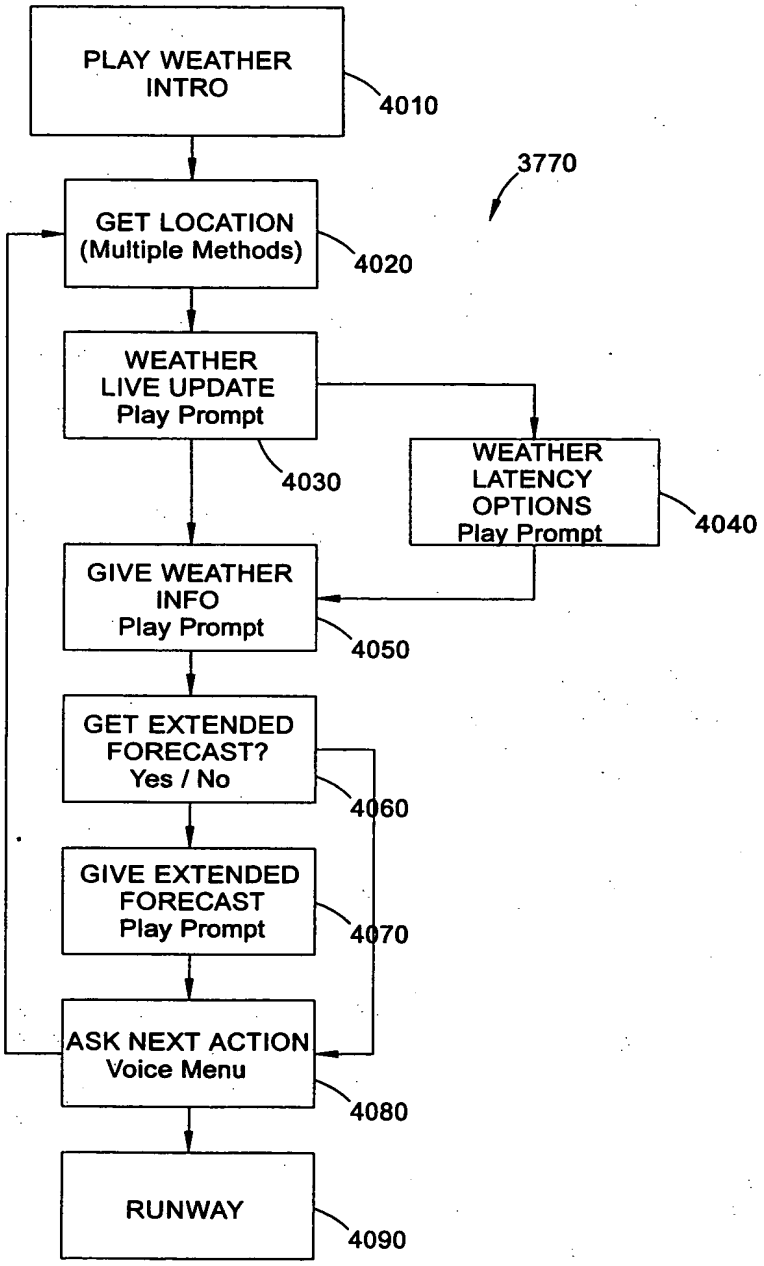
PLAY WEATHER INTRO
4010
3770
GET LOCATION (Multiple Methods)
4020
WEATHER LIVE UPDATE Play Prompt
4030
WEATHER LATENCY OPTIONS Play Prompt
4040
GIVE WEATHER INFO Play Prompt
4050
GET EXTENDED FORECAST? Yes / No
4060
GIVE EXTENDED FORECAST Play Prompt
4070
ASK NEXT ACTION Voice Menu
4080
RUNWAY
4090

FIG. 40

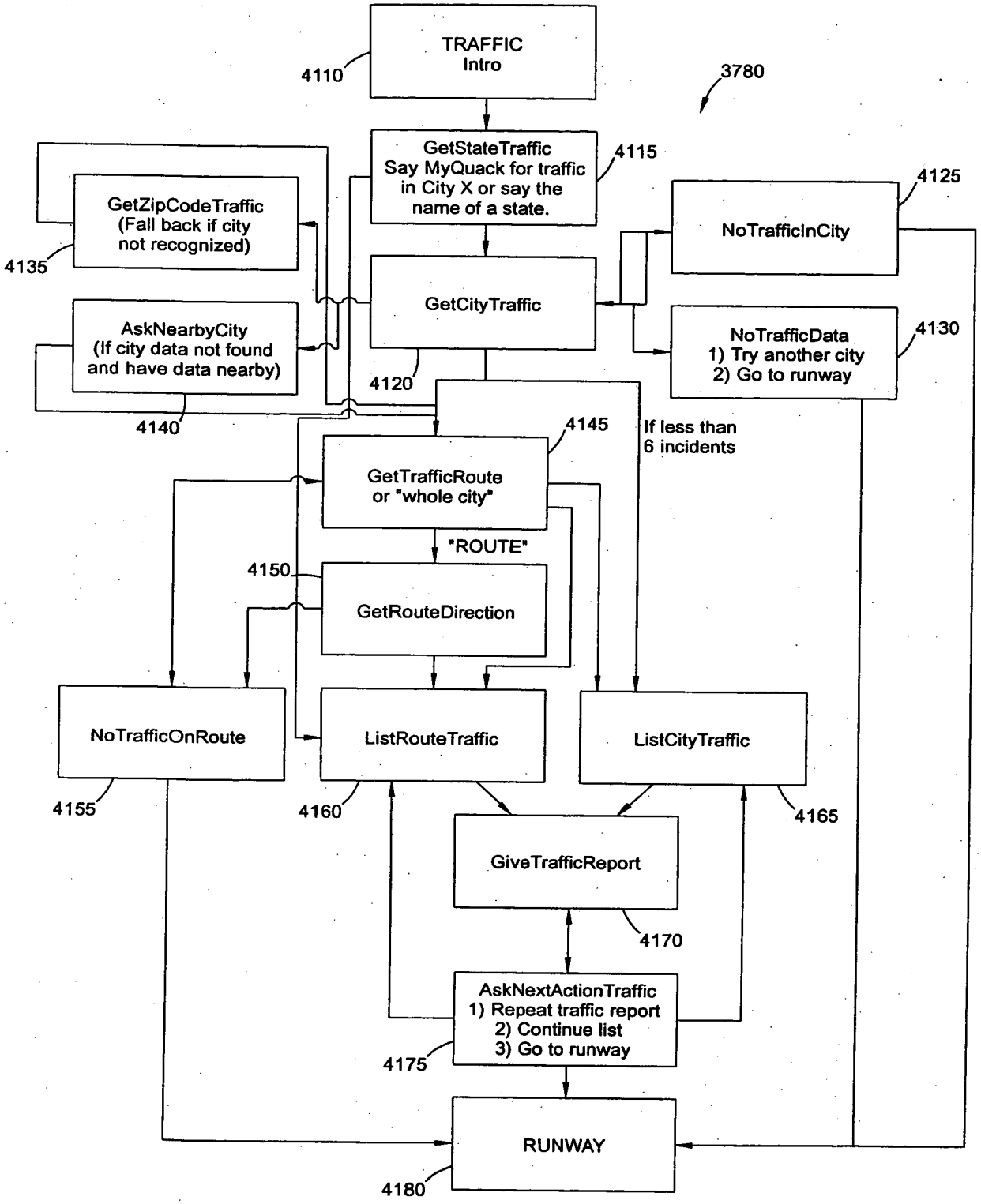
TRAFFIC
Intro
4110
3780
GetStateTraffic
Say MyQuack for traffic in City X or say the name of a state.
4115
GetZipCodeTraffic
(Fall back if city not recognized)
4135
NoTrafficInCity
4125
GetCityTraffic
AskNearbyCity
(If city data not found and have data nearby)
4140
4120
NoTrafficData
1) Try another city
2) Go to runway
4130
If less than 6 incidents
4145
GetTrafficRoute
or "whole city"
"ROUTE"
4150
GetRouteDirection
NoTrafficOnRoute
ListRouteTraffic
ListCityTraffic
4155
4160
4165
GiveTrafficReport
4170
AskNextActionTraffic
1) Repeat traffic report
2) Continue list
3) Go to runway
4175
RUNWAY
4180

FIG. 41

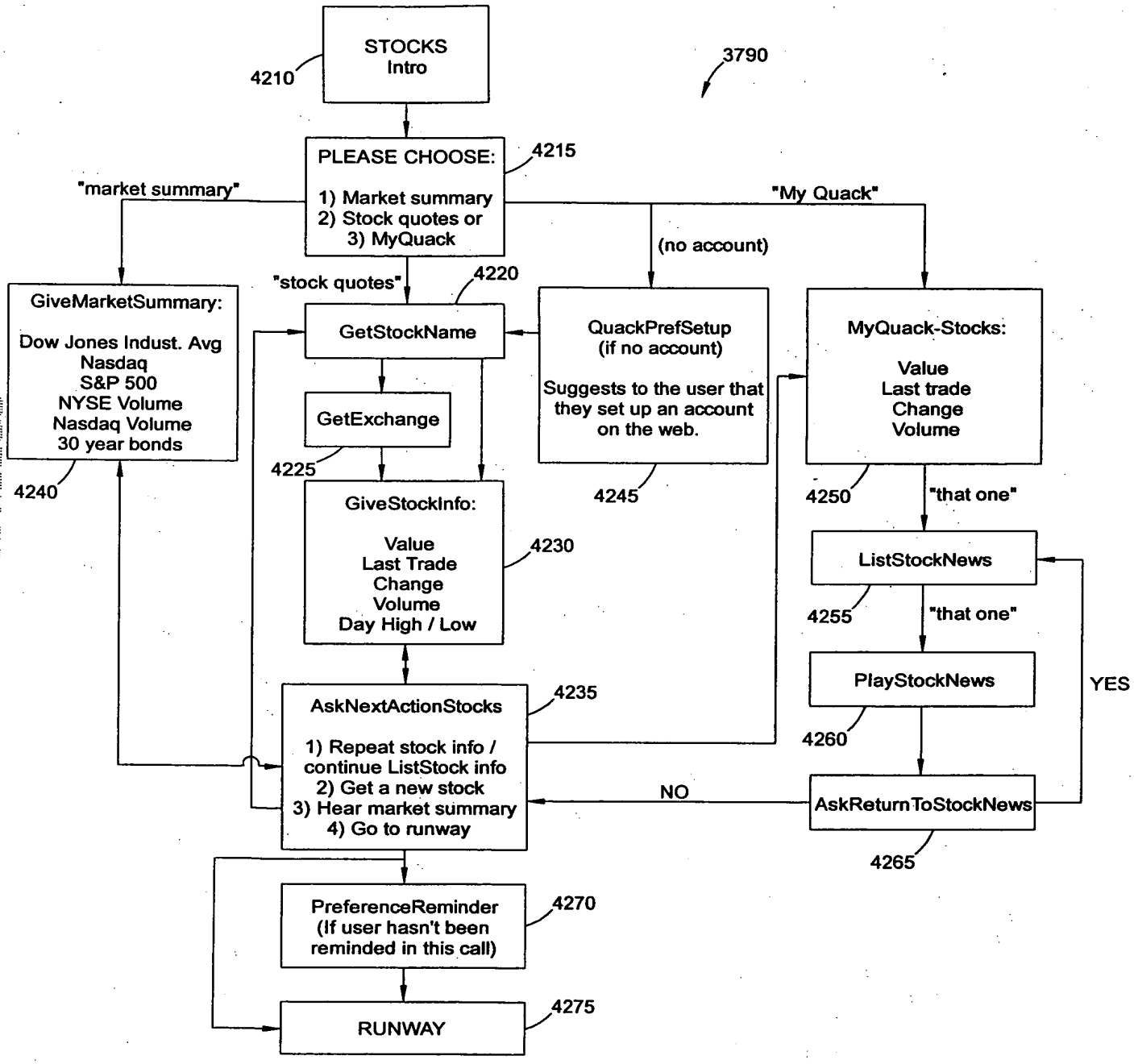
STOCKS
Intro
4210
3790
PLEASE CHOOSE:
1) Market summary
2) Stock quotes or
3) MyQuack
4215
"market summary"
"My Quack"
(no account)
"stock quotes"
4220
GiveMarketSummary:
Dow Jones Indust. Avg
Nasdaq
S&P 500
NYSE Volume
Nasdaq Volume
30 year bonds
4240
GetStockName
QuackPrefSetup
(if no account)
Suggests to the user that they set up an account on the web.
4245
MyQuack-Stocks:
Value
Last trade
Change
Volume
4250
GetExchange
4225
GiveStockInfo:
Value
Last Trade
Change
Volume
Day High / Low
4230
"that one"
ListStockNews
4255
"that one"
PlayStockNews
4260
YES
AskNextActionStocks
1) Repeat stock info / continue ListStock info
2) Get a new stock
3) Hear market summary
4) Go to runway
4235
NO
AskReturnToStockNews
4265
PreferenceReminder
(If user hasn't been reminded in this call)
4270
RUNWAY
4275

FIG. 42

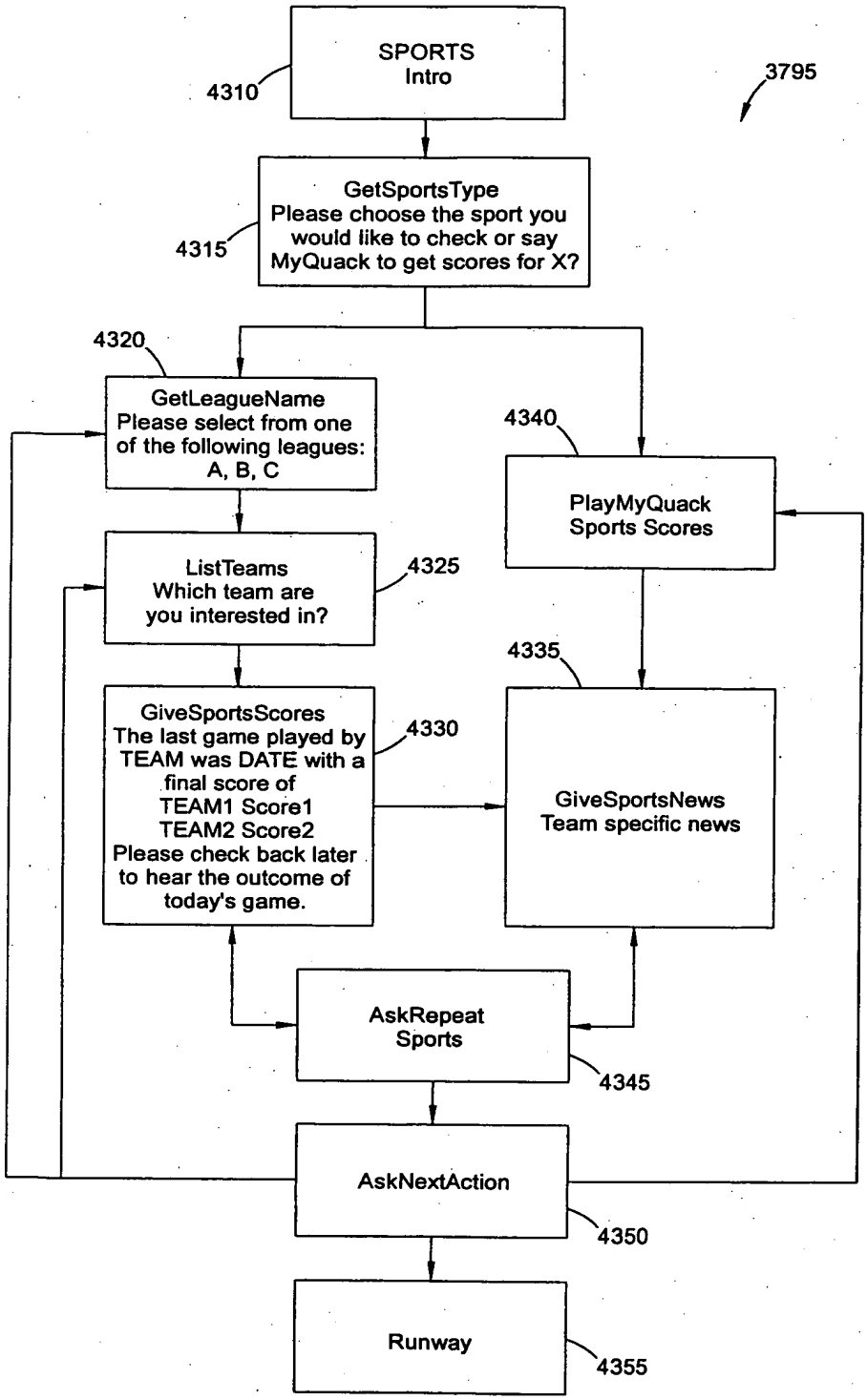
SPORTS
Intro
4310
3795
GetSportsType
Please choose the sport you would like to check or say MyQuack to get scores for X?
4315
4320
GetLeagueName
Please select from one of the following leagues: A, B, C
4340
PlayMyQuack
Sports Scores
ListTeams
Which team are you interested in?
4325
4335
GiveSportsScores
The last game played by TEAM was DATE with a final score of
TEAM1 Score1
TEAM2 Score2
Please check back later to hear the outcome of today's game.
4330
GiveSportsNews
Team specific news
AskRepeat
Sports
4345
AskNextAction
4350
Runway
4355

FIG. 43